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ABSTRACT

A presentation of individual health careers to enable the high school student to better understand the duties, opportunities, and prerequisite studies for each career and to evaluate himself in relation to all these factors is included in this manual for teachers. Units 1 and 2 address the establishment of teacher-student relationships and the evaluation of the student's present knowledge. Unit 3, the major portion of the guide, is a survey of 20 different health careers. It identifies the services rendered in the various health careers, lists the qualifications and opportunities for advancement in each, describes the functions of health-career personnel and their legal limitations to practice, and notes the basic personal qualifications desired for success in a chosen health career. Suggested activities for high school students and sources for visual aids and additional information are also included for each career. Unit 4 suggests the different areas to which field trips can be made. Unit 5 lists procedures that should be used with guest speakers. Unit 6 identifies the applicability of certain school subjects and extracurricular activities to specific health careers. Unit 7 points to the various job opportunities available in hospitals. A directory of film and filmstrip sources is also included. (HD)



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State of New Jersey
Department of Education
Division of Vocational Education

# EXPLORING HEALTH CAREERS

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Marie Santitoro

## Foreword

Opportunities for careers in the field of health are expanding rapidly. Advances in technology along with increasing population growth, particularly of older adults, are a few of the reasons for the need for increasing numbers of health workers.

Students' knowledge of categories of health workers is usually very limited. This material is designed to acquaint the learner with a wide variety of careers in health, so that more realistic career choices can be made. Suggested activities for learning more about the various careers are given. Listings of resource materials available complement each career category.

Integrated into the guide is emphasis upon the role of Health Careers Clubs of New Jersey, a youth leadership organization working to stimulate interest in this rapidly growing occupational field.

The Division of Vocational Education is pleased to offer this guide as one way of implementing a program to introduce students to opportunities in the health career field.

Joan M. Birchenall, Director
Health Occupations Education
State Department of Education
Division of Vocational Education

## INTRODUCTION

The most valuable possession of man is good health. It gives man the opportunity to have a meaningful existence. Only with good health can the full potential of a happy and rewarding life be realized.

Unfortunately, there is a shortage of personnel in the field of health. As a result, many career opportunities in the field of health are open to our youth. There have been tremendous advances made in recent years by the medical and related scientists. Yet these advances may not benefit society as quickly as they should if there is a continuing shortage of personnel in the health careers.

This program is geared to direct our youth into health careers. It is a pioneer program which is meant only to "skim the surface." Nevertheless, it is a beginning and necessary starting point upon which to build a firm foundation.

Deciding early on a health career is important for success, and many of our youth are giving serious thought to the possibility of a career in some health service. This course is designed to give such youths a good opportunity to make such a decision based on knowledge and experience. The presentation of the individual health careers enables the student to better understand the duties, opportunities, and prerequisite studies for each career. The student can then evaluate himself in relation to all of these factors.

At the end of this manual will be found a list of sources for visual aids.

Marie Santitoro

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## Unit 1 - The Establishment of Teacher-Student Relationships

Objectives – The teacher will be able:

To identify and develop a sound teacher-student relationship.

To achieve a healthy classroom environment.

The human relations objective is concerned with helping an individual make personal adjustments and group adjustments as a member of a team, the class. Full participation in the health occupations orientation program should provide the best opportunities for making these adjustments, if there are proper leadership and well-adjusted, receptive students. This is the ideal situation, however, and not usually the situation in reality. For every person, including teacher and each student, has a different personality, with various aspects that are part of the personality makeup. These hereditary and derived tendencies are the bases which determine the type of personality an individual will possess. The distinctive nature of these tendencies within each individual constitute the differences of personalities. Each person has different interests, ideals, attitudes, and emotional drives that go into the makeup of his personality. Therefore, by providing the student with a satisfying experience in specific health activities in which he has a natural desire to engage, the opportunity is present to develop desirable traits in that student and to stimulate her to pursue a career in the field. The key is qualified leadership.

There are various elements essential to the development of a healthy, sound relationship between teacher and student. Personality and qualified leadership constitute the core of success. The following elements must also be considered if the total picture is to be one of successful interpersonal relationships.

A. *Seriousness of the student's decision*

The student must be suited for the type of work she is considering. This can usually be determined by having the student assemble the information on a specific career or by experience in the work itself. Finally, she should discuss the matter with the teacher and counselor. Here is where the teacher must resort to all of her talents in helping to understand and guide the student before her. This is the critical stage, since the influence of the teacher is of enormous importance in the selection of a career.

B. *The individual's adjustment in life*

The knowledge of the student's background is essential. The teacher must be aware of the student's situation in the family and in society, since these factors will affect her work. The teacher with this essential information will be better equipped to help the individual student to function at her peak capacity.

C. *The personal characteristics of the student*

There are many aspects of character and personality. These aspects are the elements responsible for the variety of different personalities. In fact, no two people are exactly alike. Thus the teacher must be aware of each student's background, environment, intellectual level, aptitudes, abilities, and disabilities. The teacher who is aware of all of these factors can help develop an all-around sound personality.

a. Intelligence level (mental capacity)
b. Physical abilities and limitations
c. Ambition and drive
d. General attitude
e. Other personal characteristics

D. *The communications capacity of the student*

The student's ability to relate to and empathize with others is a major factor for success in any career, but especially for a health career, since there is constant contact with people.

Conclusion:

With the above factors in mind, the teacher can create a sound, wholesome teacher-student relationship. Further progress can be attained through teacher-pupil planning at the beginning of each term, to give the student an opportunity to express her needs. Cooperative planning is good for continued personal motivation as well as continuity of content.

Together, teacher and student could plan several conference periods which would enable the student to have private sessions to discuss questions that are personal in nature. The class can also meet as a group to discuss any controversial aspects of the Health Career course.

Finally, personal attention can be given to each student according to her rate of growth or progress. All of this is made possible since the teacher *knows* each student through the information indicated above.

## Unit 2 – Evaluation of Student – Present Knowledge of Students

Objectives – The teacher will be able:

To establish a sound basis upon which to build a deeper and more fruitful line of communication.

The background knowledge of the students will vary greatly. Young people today are being confronted with medical terms in every type of advertisement proclaiming the value of the product advertised. Eating habits have changed drastically in the past decade alone. Complex products of all types have changed the way of life in America to a great extent. Knowledge and values of the average person have been affected. Therefore it becomes necessary to evaluate the knowledge and values of each student.

**Pre-test of student's present knowledge of health**

1. Knowledge of the following topics should be part of the background of the average individual. It is important for the teacher to know the extent of the student's knowledge of each topic. This will allow the teacher to give special attention where required. Pupil-teacher planning at the beginning of the school year gives the students an opportunity to grow at a steady pace. This cooperative planning creates continuous motivation and continuity in content. The best planning is based on an accurate knowledge of the student's needs. There are some topics on which student knowledge should be evaluated:

   a. The value of a good breakfast
   b. The adequacy of a hamburger and soft drink for lunch
   c. Food fads and the damage they can do
   d. How to maintain the proper weight
   e. The need for adequate sleep to maintain good health
   f. The ways in which germs and diseases are spread
   g. "The best investment is good health."

2. Obtain general health information for each student.

   a. age
   b. weight
   c. height
   d. vision
   e. teeth
   f. hearing
   g. past medical history
   h. present medical history

## Unit 3 – Survey of Health Careers

Objectives – Student will be able:

To identify the services rendered in the various health careers.

To list the qualifications and opportunities for advancement of each health career.

To compare the various types of health careers in hospitals, nursing homes, and health agencies.

To list the functions of health-career personnel and their legal limitations in practice.

To list the basic qualities a person who desires a health career should have.

## Dental Assistant

In the beginning of 19th century, dentists usually employed a young man or boy to assist in performing supportive tasks around the office. This regularly accepted practice was broken by Dr. Edmund Kell of New Orleans in 1885, when he employed a young woman to assist him. Soon the practice of hiring women was accepted by the public and the dental profession.

The dental assistant was usually trained on the job by the dentist himself. In 1924, Mrs. Juliette Southard founded the American Dental Assistants Association. Seven years later, in 1931, the first educational offering outside the dental office was made available through a curriculum guide developed by the association's educational committee. Finally, in 1960, requirements for the approval of education programs and a certification program for dental assistants was adopted by the American Dental Association.

Today, many institutions offer a 2-year post high school program for the training of dental assistants. The demand for dental assistants is great.

Suggested instructional procedures

Discussion
Lecture
Chalkboard
Visual aids
References and texts
Pamphlets, magazines

A. Description of work

The Dental Assistant prepares patients for examination, treatment, or dental surgery. She also performs laboratory duties, prepares dental materials, assists with X-ray films, sterilizes instruments, and assumes secretarial duties. The dental assistant works under the supervision of the dentist at all times.

B. Personal qualifications

1. Good physical and mental health
2. Manual dexterity
3. Ability to get along with people
4. Neatness
5. Courtesy
6. Orderliness
7. Ambition
8. Self-control
9. Desire to be of service
10. Willingness to assume responsibility

C. Duties

1. Prepares patients for dental examination.
2. Assists the dentist in providing dental treatment.

3. Helps in exposing X-rays and processing the X-ray film.
4. In the laboratory, assists in making:

    a. Dental appliances
    b. Models of the mouth
    c. Casts of inlays

5. In the business office serves as:

    a. Receptionist
    b. Secretary
    c. Bookkeeper

D. Education

High School graduate with courses in Typing, Bookkeeping, English, Biology, Chemistry, and Mathematics

E. Training

1. Dental-Assistant programs are offered in:

    a. Vocational schools
    b. Junior colleges
    c. Dental colleges

2. Length of course ranges from one to two years

3. The Certifying Board of the American Dental Assistants Association awards certification to those who fulfill the following qualifications:

    a. Graduation from an accredited dental-assistant program
    b. Passing an examination
    c. Fulfilling ADAA Membership requirements
    d. Completing a period of successful experience

F. Advancement

A Dental-Assistant career offers a diversity of activity and a chance to assume a responsible and challenging position.

G. Future employment

1. Employment opportunities are vast. There is a wide variety of choice for employment in:

    a. Hospital dental service
    b. Private dental practice
    c. Group dental practice
    d. Public health agencies
    e. Government service
    f. Dental schools
    g. Dental-assisting education

2. The need for trained dental assistants is great and continuing. Steadily increasing demands for dental services and a diminishing ratio of dentists to the population have created this need.

H. Earnings

Current starting salary range $5,200–$5,850 a year.

I. Hours

1. 40 hours per week
2. May be required to work evenings and Saturdays

J. Suggested activities for high school student

1. Join a Health Careers club
2. Observe dental assistants at work in dental offices.
3. Volunteer services in dental clinic.
4. Make a field trip to a Dental Assisting school.
5. Talk to a dental assistant about advantages of this career.

K. Visual aids

*The Dental Assistant.* (DH 54) 13½ min., color, 16mm (1961), American Dental Association. This film presents information on the Dental Assistant – A Career of Service

L. Additional information may be obtained from:

American Dental Assistants Association
211 East Chicago Avenue
Chicago, Illinois 60611

American Dental Association
211 East Chicago Avenue
Chicago, Illinois 60611

American Dental Assistants Association
410 First National Bank Building
La Porte, Indiana, 46350

M. Bibliography

*Dental Assistant.* Columbus, Ohio: Ohio State Employment Service, January 1968, 2 pp., free

*Dental Assistant.* Moravia, New York: Chronicle Guidance Publications Inc., 1968, 4 pp.

*There's an Action Career Ahead When You Become a Trained Dental Assistant.* Chicago, Illinois: American Dental Association, 2 pp., free

*Your Future as a Dental Assistant.* New York: Richards Rosen Press, 1970, 138 pp.

N. References and texts

Levy, R. Irwin, *Dental Assistant.* Lea & Febiger, Philadelphia, Pa.

Morrison, G. Archanna, *In the Dentist's Office.* J. P. Lippincott Co., Philadelphia, Pa.

Covington Ethel, *The Efficient Dental Assistant.* C.V. Mosby Company, St. Louis, Mo.

McCall, John Oppie, *Practical Dental Assisting.* Dental Items of Interest Publishing Co., Brooklyn, New York

Miller, Charles J., *Inlays, Crowns and Bridges.* W.B. Saunders, Co., Philadelphia, Pa.

Peterson, Shailer, *Dentist and His Assistant.* C. V. Mosby Co., St. Louis Mo.

Wainright, W. W., *Dental Radiology.* Mc Graw Hill Co., Hightstown, New Jersey

Pennington, G. W., *Dental Pharmacology.* Davis Publication, Inc., Worcester, Massachusetts

O. Pamphlets, magazines

*Something New in White.* Pamphlet published by the Division of Dental Health, U. S. Public Health Service, Washington, D.C. 20201

*Dental Assisting Is an Action Career.* Pamphlet published by American Dental Assistants Association, 211 East Chicago Avenue, Chicago, Illinois 60611

*This Could Be You – a Trained Dental Assistant.* Published by the American Dental Assistants Association, 211 East Chicago Avenue , Chicago, Illinois 60611

*The Dental Assistant.* A monthly magazine published by the American Dental Assistants Association, 401 First National Bank Bldg., La Porte, Indiana 46350

## Dental Hygienist

The normal tasks of routine dental care that require less than a dentist's knowledge suggest that the dentist employ a dental hygienist to carry out these tasks. The dental hygienist is able to supplement the dentist's work, thus allowing the dentist to carry out the operations requiring more knowledge and skill. The first dental hygienists were trained by the dentists who hired them.

The first school organized for the training of dental hygienists was formed in the beginning of this century. It wasn't until 1915 that one of the states recognized the practice of dental hygiene as a profession. Today, this profession has been recognized for its importance and thus has expanded and gained proper stature.

Suggested instructional procedures

Discussion
Lecture
Chalkboard
Visual aids
Reference and texts
Pamphlets, magazines
Suggested activities

A. Description of work

The Dental Hygienist works under the supervision of the dentist. She cleans teeth by removing disclorations and deposits, and massages gums. She also engages in dental health education, advising patients as to techniques of mouth care and proper diet.

A dental hygienist working in a private dental office may also take and develop X-ray pictures, mix filling compounds, prepare solutions, and sterilize instruments for the dentist. Making appointments and keeping records may also be part of her duties.

B. Personal qualifications

1. Good health
2. Intelligence
3. Dependability
4. Courtesy
5. Good appearance
6. Ability to get along with people
7. Emotional stability
8. Mature personality
9. Conscientiousness
10. Manual dexterity

C. Duties

1. Teaches patients the proper way to care for their mouths.
2. Cleans and scales teeth.
3. Takes X-rays of teeth.
4. Assists dentist with routine office procedures.

D. Education

High school graduate with courses in Mathematics, Biology, Chemistry, Social Studies, English.

E. Training

Students may enroll in School of Dental Hygiene:

1. Two-year program which awards either a Certificate or an Associate Degree, or
2. Four-year program for a Bachelor degree.

A dental hygienist is required to take the National Board Dental Hygiene Examination for license to practice.

F. Advancement. A dental hygienist can be employed:

1. As a special teacher in dental-health education programs
2. In community health programs
3. In research and administrative fields (with the required post-graduate study)
4. In advanced practice in:

   a. Hospital dental clinics
   b. Clinics for physically or mentally handicapped persons

G. Future Employment

There is an increasing demand for dental hygienists in all areas of dental practice.

H. Earnings

1. Current starting salary for graduate with a 2-year certificate $6,000–$7,000 or more.
2. For graduate with a Bachelor's degree, current starting salary is $7,000–$8,000.

I. Hours

1. 40 hours per week
2. May be required to work evenings and Saturdays

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Volunteer services in dental clinics
3. Visit dental offices with dental-hygienist personnel
4. Make a field trip to a school of Dental Hygiene.
5. Observe a dental hygienist at work in your school.
6. Ask your family dentist for information on this career.
7. Talk to a dental hygienist about the unique advantages of a career in dental hygiene.

K. Visual Aids – Films

*Bright Future*. 28 min., color, 16 mm (1965), American Dental Association. This film is a recruitment film for the profession of Dental Hygienist. It shows the requirements for entrance into an educational program, takes the student through a typical course of study, and explains areas of professional practice.

L. Additional information may be obtained from:

American Dental Hygienists Association
211 East Chicago Avenue, Room 1616
Chicago, Illinois 60611

American Dental Association
211 East Chicago Avenue
Chicago, Illinois 60611

M. Bibliography

*Accredited Dental Hygiene Program*. Chicago, Illinois: American Dental Hygienists Association, January 1969, 5 pp., free

*A Mirror Image of a Dental Hygienist* Chicago, Illinois: American Dental Hygienists Association, 3 pp., free

*Careers in Dental Hygiene*. Chicago, Illinois: American Dental Hygienists Association, 5 pp., free

*Dental Hygiene – A Career With a Future*. Chicago, Illinois: American Dental Hygienists Association, 1 page, free

*The Registered Dental Hygienist*. Washington, D.C.: United States Department of Health, Education and Welfare, 1966, 8 pp., 15¢

N. Texts and References

Kerr, Donald Archibald, and Major M. Ash, *Oral Pathology: An Introduction of General and Oral Pathology for Hygienists*. Lea & Febiger, Philadelphia, Pa.

Wheeler, Russell C., *A Textbook of Dental Anatomy and Physiology*. 3rd Edition, W. B. Saunders Company, Philadelphia, Pa.

Bregstein, Samuel Joseph, *Handbook For Dental Hygienists, Secretaries, and Assistants*. Prentice-Hall, Inc., Englewood Cliffs, New Jersey

Pennington, G.W., *Dental Pharmacology*, Davis Publication, Inc., Worchester, Mass.

Peterson, Shailer, *Dentist and His Assistant*. C.V. Mosby Co., St. Louis, Mo.

Wainright, W.W., *Dental Radiology*. McGraw Hill Co., Hightstown, New Jersey

Benson, H.J. and K.E. Kipp, *Dental Science Laboratory Guide*. W. C. Brown Co., Dubuque, Iowa

O. Pamphlets, Magazines

*Something New in White.* A pamphlet published by the Division of Dental Health, U. S. Public Health Service, Washington, D.C. 20201

*Juliette A. Southard Scholarship Pamphlet.* A pamphlet published by the American Dental Assistant Association, 410 First National Bank Building, La Porte, Indiana 46350

*The Dental Assistant.* A monthly magazine published by the American Dental Assistants Association, 401 First National Bank Building, La Porte, Indiana 46350

*Careers In Dental Hygiene.* Pamphlet published by the Division of Educational Services, American Dental Hygienists Association, 211 East Chicago Avenue, Chicago, Illinois 60611

## Dental Laboratory Technician

Related Information

The modern concept of the dental laboratory technician is a relatively new one. It grew into maturity as scientific methods of dentistry advanced and the idea of preventing and correcting dental problems grew. The tasks of dental laboratory technicians are time-consuming and technical. The dentist himself would not be able to carry this burden alone. Thus, due to necessity, this profession was born.

It was as late as 1958 that the certification program for this profession was established. In one decade more than 9,000 dental technicians applied for certification and were examined. Today, more than 6,000 have been certified and carry the "C.D.T." certification identification letters behind their names.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
References and texts
Pamphlets
Suggested activities

A. Description of work

The Dental Laboratory Technician is responsible for the fabrication of all types of dental appliances, but he seldom sees the persons for whom they are intended. He works from a written prescription and from an impression of the patient's mouth supplied by the dentist.

Since the tasks of the all-around technician are varied, he must have a knowledge of all phases of dental technology. He may prepare orthodontic corrective appliances that apply pressure to teeth to bring them into correct position, or he may make ceramic or plastic teeth and crowns. He may also cast the metal framework for plates and bridges, as well as for gold and porcelain inlays. In addition to making dental appliances, the dental technician also may be required to repair broken dentures.

B. Personal qualifications

1. Good physical and mental health
2. Manual dexterity
3. Good color perception
4. A liking for detailed work
5. Dependability
6. Courtesy
7. Patience
8. Ability to read and follow instructions
9. Neatness

C. Duties

1. Constructs complete and partial dentures.
2. Makes crowns and fixed bridgework.
3. Casts gold or other precious metals for partials.
4. Makes individual porcelain and acrylic restorations.
5. Constructs orthodontic appliances.

D. Education

A high school education is a minimum requirement for those seeking a career in this field. High school graduates who have completed courses in Ceramics, Art, Sculpturing, Blueprint Reading, Plastics, Metalworking, Chemistry, and Physiology receive special consideration.

E. Training

1. Junior colleges – a 2-year program which includes both academic and laboratory instruction, leading to an Associate of Arts degree.

2. Vocational schools and private schools offer 1- and 2-year programs

3. On-the-job training program in a commercial dental laboratory. Training period usually lasts 3 to 4 years, depending upon the trainee's ability and previous experience.

4. Dental laboratory technician training programs are also offered in the Army, Navy, and Air Force.

F. Advancement

Opportunities are virtually unlimited, and the demand for qualified dental laboratory technician is expected to continue during the next decade.

Qualified and experienced dental laboratory technicians may readily establish their own laboratory businesses.

G. Future employment

1. Commercial dental laboratories
2. Dentists offices
3. Government agencies

H. Earnings

1. Current starting salary range $8,840–$11,700
2. Self-employed earn about $15,600

I. Hours

Usually a 5-day, 40-hour work week.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Observe a dental laboratory technician in a commercial dental laboratory.
3. Make a field trip to a commercial dental laboratory.

K. Visual Aids

*Laboratory of the Body.* 28 min., color, 16 mm (1968), American Dental Association. This film describes the constantly expanding scope of dental research and its relation to today's scientific community. Its basic purpose is to describe the challenge of dental research to senior high school and college students who are interested in science. It is designed to attract students who might become biologists, physicists, or bio-chemists, so that they may investigate the challenges in dental research.

*The Case of the Missing Tooth.* 16 min, color, 16 mm, New Jersey State Museum. The theme of this film involves a construction project and shows how the dental arch must be maintained in the same manner as a building structure.

L. Additional information may be obtained from:

National Association of Dental Laboratory Technicians
734 17th Street, N.W.
Washington, D. C. 20006

American Dental Association
211 East Chicago Avenue
Chicago, Illinois 60611

National Board For Certification
3801 Mount Vernon Avenue
Alexandria, Virginia 22305

M. Bibliography

*Accredited Dental Laboratory Technology Programs.* Chicago, Illinois: The American Fund For Dental Education, June, 1969, 2 pp., free

*Dental Laboratory Technician.* Chicago, Illinois: Science Research Associates, Inc. 1969, 4 pp.

*Hands That Think – A Word About Careers in Modern Dental Laboratory Technology.* Alexandria, Virginia: National Board of Certification, July 1968

N. References and texts

Dept. of Army, *Dental Laboratory Technician.* Superintendent of Documents, U.S. Government Printing Office

*Handbook For Dental Prosthetic Technicians.* Superintendent of Documents, U.S. Government Printing Office

*Guide to Hospital Dental Procedure.* Chicago, Illinois: American Dental Association

Benson, Harold J., and Kenneth E. Kipp, *Dental Science Laboratory Guide.* Dubuque, Iowa: Wm. C. Brown Company

Boucher, Carl Opdyke, *Current Clinical Dental Terminology.* St. Louis, Mo: C.V. Mosby Co.

Wheeler, Russell C., *A Textbook of Dental Anatomy and Physiology.* Philadelphia, Pa.: W.B. Saunders Co.

American Dental Association, *Guide to Dental Materials.* Chicago, Illinois

Peterson, Shailer Albarey, *Clinical Dental Hygiene.* St. Louis, Mo.: C.V. Mosby Co.

Morrison, Goldie Archanna, *In the Dentist's Office: A Guide for Auxiliary Dental Personnel.* Philadelphia, Pa.: J. B. Lippincott Co.

Stinaff, Robert K., *Dental Auxiliary Personnel.* St. Louis, Mo.: C.V. Mosby Co.

Moser, C.A. and others, *Dental Health and Dental Services.* Fairlawn , N. J.: Oxford University Press.

Wheeler, R.C., *Textbook of Dental Anatomy and Physiology.* 4th Ed., Philadelphia, Pa.: W.B. Saunders Co.

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Benson, H. J. and K. E. Kipp, *Dental Science Laboratory Guide.* Dubuque, Iowa.: W. C. Brown Co.

O. Magazine

*This Could Be You – A Trained Dental Assistant.* Published by the American Dental Assistants Association, 211 East Chicago Avenue, Chicago, Illinois 60611

## Dentist

Dentistry has been necessary since the beginning of mankind. The first practice of dentistry must have been extremely primitive. For centuries teeth were extracted for frivolous reasons – even to remove the pain of headache! The rudimentary dental care of the past cannot be compared to the present profession of dentistry. Today dentistry is a scientifically founded profession vital to the health of any community.

Suggested instructional procedure

Lecture
Discussion
Chalkboard
Visual aids
Bibliography
References and texts
Suggested activities

A. Description of work

1. The Dentist is concerned with treating ailments or abnormalities of the teeth and gums and with limiting the incidence of their occurrence or recurrence.

   A dentist is a highly respected professional person in his community. With the physician, nurse, and public health officer, the dentist is an important member of a health team which serves to improve the health standards of the community. He or she is often a community leader, taking part in community service work.

2. About 6 percent of dentists are recognized as specialists, Specialists are as follows:

   **Orthodontist** – one who straightens teeth

   **Oral surgeon** – performs operations on the mouth and jaws

   **Periodontist** – treats the tissues that support the teeth

   **Prosthodontist** – makes artificial teeth or dentures

   **Pedodontist** – specializes in dentistry for children

   **Oral pathologist** – specializes in diseases of the mouth

   **Endodontist** – specializes in diseases of the pulp and does root canal therapy

B. Personal qualifications

1. Good physical and mental health
2. Manual dexterity
3. Intelligence
4. Enjoyment of detailed work

5. Tact
6. Patience
7. Good personality
8. Ability to work hard
9. Neatness
10. Ability to get along with people
11. Good judgment
12. Perseverance
13. Desire to be of service to others

C. Duties

1. Extract teeth.
2. Fills cavities.
3. Cleans teeth.
4. Takes and interprets X-ray films.
5. Takes impressions for dentures and fits artificial teeth.
6. Diagnoses, prevents, and corrects tooth and gum disorders.
7. May educate the public to the importance of dental health and care.

D. Education

Three to four years of college with courses in Biology, Chemistry, Physics, Mathematics, English, Social Studies, Languages.

E. Training

1. Dental school (4 years). The degree of Doctor of Dental Surgery (D.D.S.) is granted at graduation.

2. Two to three years' post-graduate work needed to specialize.

3. A dental graduate must pass a state examination to be licensed to practice dentistry.

F. Advancement

1. A successful dentist builds a reputation and thus advances with the confidence of his patients.

2. Career opportunities in:

a. Independent practice
b. Specialty practice
c. Research
d. Teaching in dental schools
e. Business
f. Government service

G. Future employment

1. The demand for dentists is constantly growing as the nation's population increases and the public becomes more educated to the need for dental-health care.

2. Current statistics relating to both the need and demand for dental services indicate that approximately 111,000 dentists will be needed in the next decade to maintain present-day standards of dental health

H. Earnings

Dentists earn $29,000 a year and up

I. Hours

1. Sets own working hours if in private practice
2. 40-50 hours per week

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Observe dentists in private offices
3. Observe dentists in dental clinics.
4. Discuss dentistry as a career with your family and teachers.
5. Discuss the dental profession with your dentist.
6. Make a field trip to a dental school.

K. Visual Aids

*Pattern of a Profession.* Two parts, 51 min., color, 16 mm, N. J. State Museum. Dramatizes the importance of the mouth as a vital organ of the body. The professional man who treats the mouth is the focus that makes the film valuable in vocational guidance. The education of dentists, dental research and practice, the dentist in public health service, and the professional organizations are depicted.

*Challenge of Dentistry.* 28 min., color, 16 mm (1962), American Dental Association. This film shows how youth becomes aware of the importance of dentistry. It answers basic questions about the dental profession, the training and qualifications necessary, as well as the rewards of the profession.

*Laboratory of the Body.* 28 min., color, 16 mm (1968), American Dental Association. This film describes the constantly expanding scope of dental research and its relation to today's scientific community. Its basic purpose is to describe the challenge of dental research to senior high school and college students who are interested in science. It is designed to attract students who might become biologists, physicists, or bio-chemists, so that they may investi-gate the challenges in dental research.

*Dental Health: How and Why*. 10 min., color, 16 mm, N. J. State Museum. This film helps develop constructive attitudes toward dental health by demonstrating clearly and interestingly the recommended care of the teeth and mouth.

*Gateway to Health*. 20 min., color, 16 mm, N. J. State Museum. A factual story of prevention of tooth decay by a group of youngsters and adults under guidance of their dentist.

*Teeth: Development and Care*. 11 min., B/W, 16 mm, N. J. State Museum. Animated drawings and direct photography present vividly four vital problems in connection with teeth: how teeth develop and grow; which foods help to build strong teeth; how to brush the teeth; and how the dentist cares for our teeth.

L. Additional information may be obtained from:

American Association of Dental Schools
211 East Chicago Avenue
Chicago, Illinois 60611

American Dental Association
220 East Superior Street
Chicago, Illinois 60611

M. Bibliography

*Careers in Dentistry*. Chicago, Illinois: American Association of Dental Schools, 1966, 18 pp., free

*Dentistry – A Career for Women*. Chicago, Illinois: American Dental Association, 7 pp., free

*Financial Aid for Dental Students*. Chicago, Illinois: American Association of Dental Schools, 10 pp., free

*The Challenge of Dentistry*. Chicago, Illinois: American Association of Dental Schools, 10 pp., free

*Your Future In Dentistry*. Chicago, Illinois: American Association of Dental Schools, 1968, 6 pp., free

N. References and texts

Bregstein, S. Joseph, *The Dentist and His Control of Practice;* Dental Items of Interest Publishing Company, Brooklyn, New York

Morrison, Archanna, *In the Dentist's Office* J. B. Lippincott Co., Philadelphia, Pa.

Swank, E. R., *Dental Practice and Management* Lea & Febiger, Philadelphia, Pa.

Peterson, S., *Dentist and His Assistant*. C. V. Mosby, St. Louis, Mo.

Francis and Wood, *Dental Pharmacology and Therapeutics*. W. B. Saunders Co., Philadelphia, Pa.

Stinoff, Robert K., *Dental Practice Administration*. 2nd Ed., C. V. Mosby Co., St. Louis, Mo.

G. O. Kruger, *Textbook of Oral Surgery*. 2nd Ed., C. V. Mosby Co., St. Louis, Mo.

Wheeler, R. C., *Textbook of Dental Anatomy and Physiology*. 4th Ed., W. B. Saunders Co., Philadelphia, Pa.

Young, W. O., and D. F. Striffler, *The Dentist: His Practice and His Community*. W. B. Saunders Co., Philadelphia, Pa.

Wainright, W. W., *Dental Radiology*. McGraw Hill Co., Hightstown, New Jersey

Hutchinson, A. C. W., *Dental and Oral X-Ray Diagnosis*. Williams and Wilkins Co., Baltimore, Md.

Jorgensen, N. B. and J. Hayden, Jr., *Dental Anesthesia*. Lea and Febiger Co., Philadelphia, Pa.

Moser, C. A. and others, *Dental Health and Dental Services*. Oxford University Press, Fairlawn, New Jersey

O. Pamphlets, magazines

*Admission Requirements of American Dental Schools*. Available at $2.00 per copy from American Association of Dental Schools, 211 East Chicago Avenue, Chicago, Illinois, 60611

*Careers in Dentistry*. Available free of charge from Council on Dental Education, American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611

*Dental Aptitude Testing Program*. Available from Council on Dental Education, American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611

*Frontiers of Dental Science*. Available from American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611

*Journal of American Dental Association*. Available from American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611

**Dietitian**

*Dietitian looks on as Health Career student assists patient in selection of menu.*

## Dietitian

Since the existence of the family, food planning has been the responsibility of the housewife. Up until recently she was generally unaware of the importance of nutrition and a balanced diet. Scientists began to learn more about nutrition and its influence on good health. Food planning took on added importance for all. Thus, the profession was born. Dietitians were needed in hospitals, schools, and other types of institutions.

In the late 19th century, people were being taught ways of preparing food, yet the dietitian's profession was slow to develop. It was only in this century as scientists learned of the body's need for the various nutrients, was the importance of this profession realized. Good health cannot be realized without proper nutrition.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Bibliography
References and texts
Pamphlets
Suggested activities

A. Description of work

The Dietitian is a member of the medical team who provides nutritional advice and specific plans for meals. Dietitians are proficient in the art of feeding individuals and groups with balanced and attractive diets. They excel in the sciences of nutrition and management.

B. Personal qualifications

1. Good mental and physical health
2. Ability to communicate
3. Ability to get along with people
4. Patience
5. Good personal appearance
6. Neatness
7. Pleasant personality
8. Willingness to accept responsibility
9. An interest in foods, nutrition, and management
10. Cleanliness

C. Duties

1. Prepares meals to be served to patients or other groups of people.

2. Observes and reports information regarding patient's eating habits, food preferences, and progress.

3. Plans various diets and menus.

4. Supervises and sees that meals served are nutritionally adequate for patients, in accordance with the doctor's orders.

5. Gives instruction to patients and families on nutrition and good eating habits.

6. Has conferences with interns, nurses, and dietary personnel concerning nutrition and dietetics.

7. Offers nutritional guidance to community groups.

D. Education

High school graduate with courses in Home Economics, Biology, Mathematics, Chemistry, Typing, English, Social Studies.

E. Training

1. A Bachelor's degree from an accredited college or university, fulfilling requirements specified by the American Dietetic Association.

2. An approved dietetic internship for a period of one year.

F. Advancement

Today dietitians hold responsible positions in medical and health-care centers, public health agencies, industries, universities, the armed services, and international organizations. These areas offer excellent career opportunities to young men and women who are qualified in dietetics.

The dietitian with advanced education and experience can attain a higher position in the field of dietetics.

G. Future employment

Employment opportunities are excellent in:

1. Hospitals
2. Armed services
3. Medical clinics
4. U. S. Public Health Service
5. Veterans administration
6. Colleges and universities
7. Commercial food service
8. Restaurants

9. Clubs
10. Hotels
11. Industrial food service
12. School food service
13. Food-service-equipment companies
14. Magazines and newspapers
15. Radio and television stations
16. Business organizations
17. Health and welfare agencies

H. Earnings

1. Current starting salary range $8,900–$9,750 yearly

2. Experienced dietitians earn $11,200–$17,000.

3. Salaries vary according to place of employment.

I. Hours

A 40-hour week

J. Suggested activities for high school student

1. Enroll in the home-making courses.
2. Obtain summer or part-time job in the food service department in:

   a. Hospital
   b. Nursing home
   c. Day-care center
   d. Camp
   e. Other institutions

3. Join Health Careers club
4. Volunteer services to local hospital in dietary department
5. Observe a dietitian at work
6. Make a field trip to a dietary department of a hospital, other institution, or commercial food-service facility.
7. Discuss employment opportunities in dietetics with a dietitian.
8. Obtain a list of approved colleges and universities from the American Dietetic Association.

K. Visual Aids

*View From the Mountain.* 20 min., color, 16mm, Modern Talking Picture Service. This film illustrates the experiences of a girl in a hospital dietetic internship, and traces the preparation necessary for a career in dietetics.

*Toward the Victory of Health.* 14½ min., color, 16mm, Modern Talking Picture Service. Describes the advances in nutrition and the work of the dietitian and nutritionist on the scene in hospitals, schools, research, industry, day-care centers, and other areas of the community.

*Take a Good Look.* 16 min., color slide-film, Association Films, Inc. This professional, noncommercial slide film was developed in authentic situations – on a university campus, in hospitals, in a public school, in community centers where nutrition services are available, and in commercial organizations. Each group of illustrations represents actual positions held by dietitians and nutritionists. It also suggests that young people on the threshold of making a career choice match their talents and interests with opportunities in this field.

*The Search for Meaning.* 5 min. 20 seconds, color, 16 mm, Modern Talking Picture Service. This film suggests a sound approach to choosing a career and provides an impressive amount of useful information about dietetics.

L. Additional information may be obtained from:

The American Dietetic Association
620 North Michigan Avenue
Chicago, Illinois 60611

American Home Economics Association
1600 Twentieth Street, N. W.
Washington, D.C. 20009

M. Bibliography

*Careers in Dietetics.* Washington, D. C.: U. S. Civil Service Commission, August 20, 1968, 6 pp., (free)

*Careers in Nutrition.* Bethesda, Maryland: American Institute of Nutrition, 3 pp., (free)

*Dietetics in Health Agencies.* Chicago, Illinois: The American Dietetic Association, 1967, 1 page, (free)

*Dietetics in Hospitals.* Chicago, Illinois: The American Dietetic Association, 1967, 1 page, (free)

*Dietitian – A Stimulating Career.* Washington, D.C.: Veterans Administration, Department of Medicine and Surgery, September 1965, 3 pp, (free)

N. References and texts

Bender, A. E., *Dictionary of Nutrition and Food Technology.* Hamden, Conn.: Archon Books (1969)

Birch and Gussow, *Disadvantaged Children: Health, Nutrition, and School Failure.* New York: Grine & Stratton 1970

Davidson, *Human Nutrition and Dietetics,* 4th Ed. Baltimore, Md.: Williams & Wilkens Co 1969

McWilliams, *Nutrition for the Growing Years.* New York: J. Wiley & Sons, Inc. 1967

Wohl and Goodhart, *Modern Nutrition in Health and Disease*, 4th Ed., Philadelphia, Pa.: Lea & Febiger

*Advances in Food Research*. New York: Academic Press

Cummings, Richard O., *The American Nutrition and His Food*. A history of food habits in the U. S.. Chicago, Illinois: University of Chicago Press

**Inhalation Therapist**

*Inhalation Therapy is a paramedical specialty whose aim is to see that the human body is receiving an adequate supply of oxygen.*

*Photograph shows inhalation therapist explaining equipment used in inhalation therapy to Health Career students.*

## Inhalation Therapist

The American Association for Inhalation Therapy was founded in 1954 by a small group of interested technicians and physicians from Chicago and New York. It is now registered in almost every state and has a membership of at least 5,000 members. This association is growing at the rapid rate of nearly 1,000 members annually.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Reference and texts
Pamphlets
Suggested activities

A. Description of work

The Inhalation Therapist follows specific instructions from the physician. He administers oxygen and operates various pieces of equipment, such as:

a. respirator
b. resuscitator
c. oxygen tent
d. nasal catheter and aerosol inhalants used in medical treatment
e. positive-pressure ventilation
f. mechanical airways

B. Personal qualifications

1. Good physical and mental health
2. Patience
3. Neatness
4. Good personal appearance
5. Good judgment
6. Tact
7. Accuracy
8. Courtesy
9. Desire to help people
10. Understanding
11. Willingness to learn
12. Ability to get along with people

C. Duties

1. Administers oxygen
2. Checks patient during treatment.
3. Keeps complete and accurate records of treatments and equipment.
4. Makes minor repairs and adjustments to equipment.
5. Checks and keeps all equipment clean and in good condition.
6. Prepares charges to patients' accounts for services rendered.
7. Instructs patients on how to perform beneficial breathing exercises.
8. May be responsible for teaching patients, nurses, interns, and other health assistants about techniques and equipment at the bedside.

D. Education

High school graduate with courses in Mathematics, Biology, Chemistry, Anatomy, English, and Social Studies.

E. Training

1. Inhalation Therapy programs are offered on-the-job in hospitals, including 1 to 2 years' clinical experience under medical supervision.

2. AMA-approved program on the Associate Degree level offered by community colleges, 2 years.

3. Several colleges and universities offer an advanced inhalation-therapy program of 3 to 4 years.

4. Candidates must meet AAIT education and experience requirements and pass a written examination for certification.

F. Advancement

Based on his advanced educational background, the inhalation therapist may be given greater responsibility in patient care, teaching, research, and I.T. department supervision. Inhalation Therapy offers a career of opportunity and a well-paid future.

G. Future Employment

Employment opportunities for qualified I.T. are excellent in:

a. Hospitals
b. Medical clinics
c. Physicians' offices
d. Community health centers
e. Colleges, for those who wish to teach

H. Earnings

1. Current starting salary $6,660–$9,960 yearly
2. Experienced therapist may earn $16,000 and up

I. Hours

1. 40-hour work week
2. Work schedule may include evenings and weekends.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Observe inhalation therapist at work administering oxygen to the patient (or other treatment specified by physician).

3. Discuss the types of treatment observed.
4. Make a field trip to a local hospital's Inhalation Therapy department.
5. Have an inhalation therapist discuss advantages of this career.
6. Describe the functions of the Inhalation Therapy department.
7. Secure local information about an inhalation-therapy career.

K. Visual aids

Tape recordings covering many topics of inhalation therapy available from the A.A.I.T., Riverside, California 92501

Filmstrips

*An Introduction to the Hospital and Its Functions.* Educational Medical Systems. Demonstrates the many ways in which the hospital and health-care team provide patient care.

*Hospital Therapeutic Services.* Educational Medical Systems. Discusses major therapy services, depicts examples, and introduces terminology. Explains equipment and facilities. Emphasizes inhalation therapy, physical therapy, and an overview of radiotherapy.

Transparencies

*Inhalation Therapy.* Robert J. Brady Company. This series of overhead transparencies presents a sequence in inhalation therapy which is authoritative and comprehensive. The transparencies are designed to aid the educator in the instruction of all personnel at all levels in the fundamental principles and techniques of therapy with oxygen and other gases.

L. Additional information may be obtained from:

American Association for Inhalation Therapy
3554 Ninth Street
Riverside, California 92501

American Registry of Inhalation Therapists, Inc.
School of Medicine, University of Rochester
Rochester, New York 14620

Department of Allied Medical Professions and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

M. Bibliography

*Inhalation Therapy Education and Training Programs.* Summit, New Jersey: Inhalation Therapy Department, Overlook Hospital. Reprint from the Journal of American Medical Association, Jan. 13, 1969, Vol. 207, No. 2, 4 pp., free

*The Career You Want.* Jersey City, New Jersey: TB Respiratory Association of Central New Jersey, May 1967, 7 pp., free

*A Career in Inhalation Therapy.* Summit, New Jersey: Inhalation Therapy Department, Overlook Hospital, 13 pp., free

*Approved Schools of Inhalation.* Summit, New Jersey: Inhalation Therapy Department, Overlook Hospital, Sept. 15, 1968. 2 pp., free

N. References and texts

Levine, Edwin R, *Inhalation Therapy.* Davis Publication, Inc. , Worchester, Mass.

*1969 Lecture Outline.* by 60 authors. 171 pp., American Association For Inhalation Therapy, Riverside, California

*Inhalation Therapy Journal of the A.A.I.T.* J.B. Lippincott Co., Philadelphia, Pa.

O. Pamphlets

Marvin Lough, *The Use of Ultrasonic Nebulization in Patients With Cystic Fibrosis.* June 1967, A.A.I.T., Riverside, California

*A Career in Inhalation Therapy.* 16 pp., $.15 per copy, A.A.I.T., Riverside, California

*Facts About A.A.I.T.*, 3 pp., free, A.A.I.T., Riverside, California

*Bulletin* published by A.A.I.T., Riverside, California

P. Poster

*Moving for Inhalation Therapy.* An 8½ X 11, 3-color poster designed for membership recruitment. Free, A.A.I.T., Riverside, California

Medical Record Librarian

Medical Record Librarian explains and shows a medical record to Health Career student.

## Medical Record Librarian

The task entrusted to the medical-record librarian goes hand in hand with the work of the medical practitioner. For years records were normally kept by the medical men themselves. In the last few decades, medical science has advanced so rapidly that keeping medical records became a complex task. Recording has become more important and more time-consuming.

Thus in the 1920's, the medical-record librarian became a reality. The librarian is now considered an assistant to the medical profession.

Once information has been properly recorded, medical research has a tremendous resource – a source for future knowledge.

Suggested instructional procedures

Lecture
Discussion
Bibliography
References
Pamphlets
Suggested activities

A. Description of work

The Medical-Record Librarian is responsible for providing a system for acquiring, processing, and storing information so that it can be readily available. Vital information in the medical records is needed by the patient, the community, the hospital, the medical personnel, and medical researchers.

B. Personal qualifications

1. Good physical and mental health
2. Intelligence
3. Tact
4. Able to get along with people
5. Neatness
6. Accuracy
7. Orderliness
8. Courtesy
9. Ability to keep information confidential
10. Reliability
11. Honesty
12. Good judgment
13. Willingness to accept responsibility

C. Duties

1. Obtains complete records on individual patients from each member of the professional staff – surgeons, nurses, pathologists.

2. Maintains a filing system capable of making records available immediately.

3. Releases information from the record files to authorized persons.

4. Analyzes the records which come to the record department and prepares them for future use.

5. Compiles statistics which serve hospital directors, public health officials, and others.

D. Education

High school graduate with courses in Typing, English, Anatomy, Physiology, Social Science, Biology, Chemistry, Mathematics, Foreigh Language.

E. Training

1. Student must complete an approved program at a college or university which leads to a Bachelor's degree with a major in Medical Records Science or Medical Records Administration.

2. For the college graduate with a Bachelor's degree, there are postgraduate programs which offer a Certificate in Medical Records Science or Medical Records Administration after 12 months of study.

3. Candidates who pass the National Examination of the American Association of Medical Record Librarians are entitled to professional recognition as a Registered Record Librarian (RRL).

F. Advancement

There are excellent opportunities for advancement in this field because of the shortage at the present time. Medical-record librarian may advance from assistant to a supervisory or administrative position. There is also a need for qualified teachers in medical-record-librarian schools.

G. Future employment

The demand for qualified medical-record librarian is expected to continue in the next decade. The shortage is likely to increase because of growth in the number of hospitals and health agencies and the volume and complexity of records.

H. Earnings

1. Current yearly salary range $8,100 and up.
2. Administrative starting salary $20,000 and up.

I. Hours

1. Work week is usually 40 hours.
2. Work schedule may include weekends.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Obtain part-time clerical work in hospital medical-record library.
3. Make a field trip to a medical-record library.
4. Describe functions of the medical-record librarian.
5. Discuss salary and working conditions expected as a qualified medical-record librarian.
6. Obtain information available from school library on a career as a medical-record librarian.
7. Talk to a medical-record librarian about the advantages and disadvantages of this career.
8. List the personal qualifications for a career as medical-record librarian.
9. Volunteer services to local health agency and observe a medical-record librarian at work.
10. Discuss your plans about this career with your parents.

K. Visual Aids

*Understanding Statistics.* 30 min., 16 mm B/W, American Hospital Association Film Library.
*Part I* – Vernon E. Weckwerth, Ph. D., Associate Professor, University of Minnesota School of Public Health, discusses statistical concepts. His use of everyday language makes the information easy to understand.
*Part II* – Robert E. Linde, Director, Bureau of Fiscal Services, American Hospital Association, presents accounting as a tool in decision-making and discusses accounting reports, telling what these reports mean to management.

*Horizons Unlimited.* (3033) 28 min., 16 mm, color, Modern Talking Picture Service. This film presents information on a wide range of rewarding careers in medicine and allied fields, as well as medical office work.

Filmstrip:

*An Introduction To The Hospital and Its Functions.* Educational Medical Systems, P. O. Box 960, Orange, California 92669. Demonstrates the many ways in which the hospital and health-care team provide patient care. Defines patient-centered functions of a typical community hospital and the roles of multi-level personnel.

L. Additional Information may be obtained from:

American Medical Record Association
211 East Chicago Avenue
Chicago, Illinois 60611

Department of Allied Medical Professions and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

Medical Library Association
919 North Michigan Avenue
Suite 1601
Chicago, Illinois 60611

M. Bibliography

*Medical Record Librarian.* Chicago, Illinois: American Association of Medical Record Librarians, 3 pp., free

*Studying in Eden on the Bayous.* Chicago, Illinois: American Association of Medical Records Librarians, reprints from Medical Record News (1966), free

N. Reference

Weed, Laurence L., *Medical Records, Medical Education and Patient Care.* Cleveland: Case Western Reserve Press

O. Pamphlet

*Medical Record Librarian.* Trenton, New Jersey: N. J. Department of Labor and Industry (1964), free

*Fact Sheet – Medical Record Librarian and Medical Record Technician.* Chicago, Illinois: American Medical Record

*Medical Record Librarian Schools.* Chicago, Illinois: American Medical Record Association

**Medical Laboratory Technologist**

*Health Career students receive a briefing by chief of biochemistry on the functions of some of the newest equipment.*

## Medical Laboratory Technologist

The tremendous progress made in the field of medicine in this century has made the physician to some extent dependent upon the work of the medical technologist. The medical technologist plays a great part in the diagnosing and treatment of diseases.

In the early part of this century, doctors taught their medical assistants some laboratory procedures in order to have more time to cope with their ever-expanding work. Thus, the birth of the Medical Technologist came about.

In 1936, there was an attempt to standardize programs to train medical technologists. The standards for training medical technologists were established by the Board of Schools of the American Society of Clinical Pathologists, in association with the American Medical Association. Today, there are about 800 schools of Technology approved by the American Medical Associations.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Bibliography
References and texts
Pamphlets
Suggested activities

A. Description of work

Medical technology is one of the fastest growing professions associated with modern advances in medical science. The Medical Technologist is a laboratory worker. As a member of the medical team, working with pathologists and other physicians, she performs microscopic, chemical, bateriological, and other medical tests to aid physicians in the diagnosis and treatment of disease.

Other careers in the medical laboratory include:

1. **The Pathologist**. A doctor of medicine specializing in the practice of clinical science, the pathologist directs the activities of the laboratory. He or she reports and interprets test findings to the members of the medical profession.

2. **Cytotechnologist**. He or she examines cells under the microscope often in search for abnormalities that are the warning signs of cancer.

3. **Certified Laboratory Assistant**. This technologist performs many of the simpler diagnostic tests and laboratory procedures in chemistry, serology, bacteriology, histology, hematology, and urinalysis.

4. **Histologic Technician**. He or she cuts and stains body tissues for microscopic examination by the pathologist for signs of disease.

B. Personal qualifications

1. Good physical and mental health
2. Accuracy
3. Reliability
4. Ability to work under pressure
5. Ability to get along with people
6. Dependability
7. Cooperativeness
8. Manual dexterity
9. Good background in science

C. Duties

1. Draws blood from patients and examines it microscopically and chemically.
2. Analyzes the chemical composition of body fluids and tissues.
3. Identifies blood factors for transfusions.
4. Tests serum for antibodies.
5. Cultures bacteria to identify disease-causing organisms.
6. Traces cancer with radioactive isotopes.
7. Keeps records and makes reports.

D. Education

High school graduate with courses in Chemistry, Biology, Anatomy, Mathematics, English, Physics. Social Sciences.

E. Training

1. **Medical Technologist** – a Bachelor's degree in science after 3 years of college and 1 year in an AMA-accredited school of medical technology, Graduates of AMA-approved schools who pass an examination qualify for registration with the Registry of Medical Technologists of the American Society of Clinical Pathologists (A.S.C.P.) and may use the initials M.T. (A.S.C.P.) after their names.

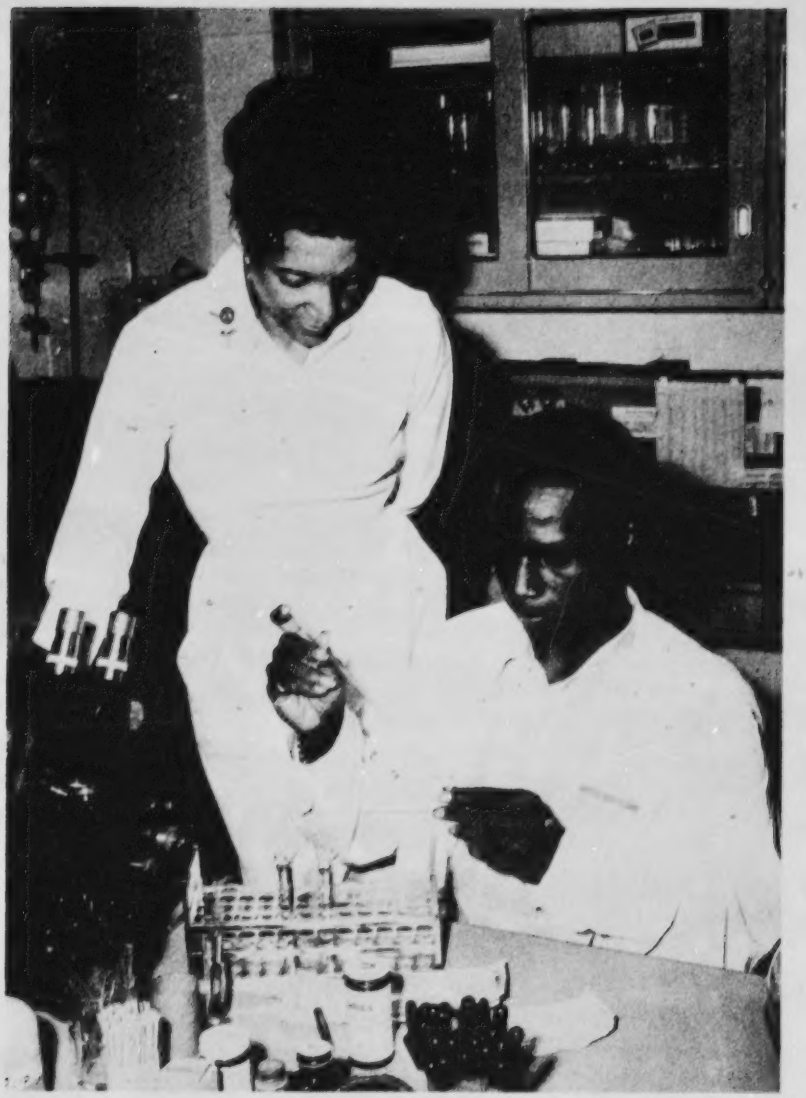
2. **Pathologist** – It takes 13 years of formal education to become a pathologist.

a. 4years of a premedical course in college
b. 4 years of medical school
c. 1 year's internship
d. 4 years of pathology residency

All this leads to certification by the American Board of Pathology.

3. **Cytotechnologist**

a. 2 years of college.
b. 6 months of training in an AMA-approved school of cytotechnology.
c. 6 months' experience in an acceptable cytology laboratory.



*Future Lab Technician (a Health Career student) performs laboratory techniques while the assistant laboratory supervisor looks on.*

4. Certified Laboratory Assistant

12 months of an approved C.L.A. school or hospital

5. Histologic Technician

a. 12 months of supervised training in a qualified pathology laboratory.
b. Certification after examination for H.T. (A.S.C.P.) by the Board of Registry of Medical Technologists.

F. Advancement

A medical technologist can advance to position as head of department or other supervisory position.

Graduate training is necessary for advancement to positions in teaching and research.

G. Future employment

The need for medical technologists has grown rapidly and the employment outlook is favorable. A need for 75,000 medical technologists is foreseen by 1975. This includes technologists in:

a. Hospitals
b. Clinics
c. Public health departments
d. Doctors offices
e. Research laboratories
f. Industrial companies
g. Pharmaceutical houses
h. Federal government agencies
i. Schools of medical technology

H. Earnings

1. Current starting salary $7,500–$8,100 annually

2. Chief medical technologist yearly salary $10,000–$13,000 and up.

3. Salaries vary according to geographic area.

I. Hours

a. Work week is usually 40 hours.
b. Work schedule may include evenings and weekends.

J. Suggested activities for high school students

1. Join a Health Careers club
2. Make a field trip to a hospital or private laboratory.
3. Volunteer services to local hospital or health agencies.
4. Talk to a medical technologist about opportunities in this career.
5. Obtain information from a local school having an approved program in medical technology.
6. List the personnel in the laboratory organization.
7. Discuss salary and working conditions expected as a medical technologist.
8. Discuss the functions of the medical laboratory.
9. Discuss the purpose of the blood bank in a hospital.
10. Discuss educational requirements for a career in medical technology.

K. Visual aids

*Career – Medical Technologist.* 24 min., color, 16mm, American Cancer Society (Local Chapter). This film is intended to stimulate recruitment of medical technologists. It is felt that films of this type should be used frequently by vocational guidance groups, high schools, colleges, and other sources of information for young people interested in this field. The film is designed to be shown before groups of young people who have not yet chosen their careers in life.

*The Human Cell and the Cytotechnologist.* 23 min., color, 16 mm, American Cancer Society (Local Chapter). This film is about the human cell and the new scientific career opened up by the increasing use of cell study as a means of cancer detection. It shows the work of a cytotechnologist as she prepares slides of cell samplings and examines them under the microscope.

*In a Medical Laboratory.* 28 min., color, 16 mm, American Cancer Society (Local Chapter). This film shows how the laboratory team – from pathologist and professional medical technologist to cytotechnologist, laboratory assistant, and histological technician – works together to track down the causes and determine the presence of disease. The film also stresses the educational requirements at each level and the importance of medically approved training standards.

*Chemical Techniques.* 3-5 min., color, 16 mm. Naval Medical School. This is a series of 3 to 5 minute sound films on volumetric flasks, special pipettes, and pipettors.

*The Vacutainer System.* 20½ min., color, 16 mm (1968), Becton, Dickinson & Co., Shows the advantages of blood collection by vacutainer specimen tube as opposed to the syringe–needle method.

L. Additional information may be obtained from:

Registry of Medical Technologists
710 South Wolcott Avenue
Chicago, Illinois 60612

American Society of Medical Technologists
Suite 1600, Hermann Professional Building
Houston, Texas 77025

American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

Board of Certified Laboratory Assistants
445 North Lake Shore Drive
Chicago, Illinois 60611

Registry of Medical Technologists
Box 2544
Muncie, Indiana 47302

M. Bibliography

*Accredited Schools of Medical Technology.* Houston, Texas: American Society of Medical Technologists (1967).

*Careers in Medical Laboratory.* Houston, Texas: American Society of Medical Technologists (1968), 4 pp.

*A Career Ladder for Medical Laboratory Personnel.* Park Ridge, Illinois: American Medical Technologists, 3 pp.

*Career Opportunities in Medical Technology.* Washington, D.C.: U.S. Civil Service Commission (1968), 6 pp.

*Medical Laboratory Careers With a Future.* Houston, Texas: American Society of Medical Technologists, 2 pp.

*Schools for the Training of Certified Laboratory Assistants.* Chicago, Illinois: American Society of Clinical Pathologists (1967), 4 pp.

N. References and texts

Frankel et al, *Gradwohl's Clinical Laboratory Methods and Diagnosis,* 7th Ed. St. Louis, Mo.: C. V. Mosby Co., (1970)

Preece, *A Manual for Histologic Technicians,* 2nd Ed. Boston, Mass.: Little, Brown and Co., (1965)

Seiverd, *Hematology for the Medical Technologist,* 3rd Ed. Philadelphia, Pa.: Lea & Febiger (1964)

White et al, *Practical Automation for the Clinical Laboratory.* St. Louis, Mo.: C.V. Mosby Co. (1968)

White and Frankel, *Seiverd's Chemistry for Medical Technologists,* 2nd Ed. St. Louis, Mo.: C.V. Mosby Co., (1965)

Winstead, *Instrument Check Systems.* Philadelphia, Pa.: Lea & Febiger (1970)

Todd, James C. and Arthur N. Stanford, *Clinical Diagnosis by Laboratory Method,* 12th Ed., Philadelphia, Pa.: W.B. Saunders Co.

Kolmer, John A., Earle H. Spaulding, and Howard W. Robinson, *Approved Laboratory Technic,* 5th Ed., New York, New York: Appleton – Crofts, Inc.

Fallis and Ashworth, *A Textbook of Human Histology.* Boston, Mass.: Little, Brown Co. (1970)

Chayne et al. *A Guide to Practical Histochemistry.* Philadelphia, Pa.: J.B. Lippincott Co. (1969)

Platt, *Color Atlas and Textbook of Hematology.* Philadelphia, Pa.: J.B. Lippincott Co. (1969)

Boorman and Dodd, *Blood Group Serology.* Baltimore, Md.: William and Wilkins (1970)

O. Pamphlets

*Medical Technologist.* Trenton, New Jersey: N.J. Department of Labor and Industry (1964), 8 pp.

*Why Not Be a Medical Technologist?* Washington, D.C.: U.S. Department of Labor – Women's Bureau (1968), 6 pp.

*Should You Be a Medical Technologist?* New York, New York: New York Life Insurance Company

*What Kind of Career Could I Have in a Medical Laboratory?* Chicago, Illinois: Registry of Medical Technologists

*The Profession of Medical Technology.* Muncie, Indiana: Registry of Medical Technologists.

Registered Nurse

*Registered Nurse instructs the health career student in proper care and sterilization of surgical instruments.*

*Nursing is by far the most popular of health professions. It is estimated that nearly 1,500,000 nurses and auxiliary nursing personnel are employed today, and still the demand spirals upward.*

NURSING

**Registered Nurse**

Nursing can be listed among the oldest callings of man. The need to care for the ill, weak, and elderly has always been present. This task was accepted wholeheartedly by the religious congregations of all types and denominations. Nursing was classified, as a result, as a religious calling or profession.

The nursing profession was brought to this continent by the Augustinian Sisters when they started to operate a hospital in Quebec in 1639.

The founder of modern nursing is considered to be Florence Nightingale. She and her helpers were responsible for saving many British lives in the 1854 Crimean War. Later, in the year 1860, she founded in St. Thomas Hospital, London, England what was considered a modern nursing school. American women did not enter the profession until a decade later.

The profession spread rapidly. By the year 1900, there were over 400 nursing schools in this country, while today, there are over 2000 nursing schools. At present there are half a million registered nurses in America. The need for such personnel still far exceeds the present supply.

Suggested instructional procedure:

Discussion
Lecture
Chalkboard
Visual aids
Reference and texts
Magazines
Suggested activities

A. Description of work

Registered Professional Nurses furnish nursing services to patients, either by giving direct nursing care or by supervising allied nursing personnel. Nurses are important members of the health team, with the primary responsibility for carrying out the doctors' instructions. Today nurses in some states are independent practitioners.

B. Personal qualifications

1. Conscientiousness
2. Dependability
3. Ability to get along with people
4. Sympathy
5. Good mental and physical stamina
6. Patience
7. Tolerance
8. Tact
9. Desire to care for sick and injured
10. Neatness

C. Duties

1. Administers medications and treatment prescribed by the doctor.
2. Gives comfort and support to patients.
3. Reports and records symptoms, clinical signs, reactions, and progress of patients.
4. Assists in teaching patients how to help themselves toward rehabilitation.
5. Supervises:

    a. Student nurses
    b. Practical nurses
    c. Nursing-aid personnel

D. Education

1. High school graduate who has pursued an academic course of study: Chemistry, Biology, English, Math, Science, Social Studies, and Foreign Language.
2. Applicant is required to take the Scholastic Aptitude Test for College Entrance.

E. Training

There are three types of programs from which the student may choose:

1. The Associate Degree in Arts, Nursing Science is awarded after a 2-year course of study which is offered in a hospital or community college.

2. The Diploma in Nursing program in a 2- or 3- year course of study which is usually provided by a hospital.

3. The Bachelor of Arts or Science with a major in Nursing program is a 4- or 5-year course of study offered by a college or university.

License is granted upon graduate's passing an examination by the State Board of Nursing.

F. Advancement

1. Education is the key to advancement in Nursing. Salary ranges increase for those nurses who have returned to school to specialize in areas such as:

    Anesthesia
    Coronary care
    Psychiatric nursing
    Obstetric nursing
    Pediatric nursing

2. Nurses who have experience may achieve positions as:

    Head Nurse
    Supervisor
    Assistant Director of Nursing Service

G. Future Employment

1. A Nursing career offers job security. Jobs in all fields of nursing should be on the increase for the next decade. Employment prospects for nurses are good because of nationwide expansion of hospital facilities, advances in medicine and science, and extension of medical programs for the aged, requiring an increase in nursing care.

2. Employment is available in:

   a. Hospitals
   b. Clinics
   c. Public health agencies
   d. Schools
   e. Nursing homes
   f. Doctors' offices
   g. Research
   h. Armed forces

3. Nurses may apply directly to:

   a. Desired place of employment
   b. Nurses' registry
   c. Public, through want ads in professional journals and newspapers

H. Earnings

1. Current starting salary for registered nurses averages $7,300 per year.
2. Nurses with experience or Bachelor's degree, $8,500 or more per year.

I. Hours

1. 40 hours per week
2. May be required to work weekends and holidays
3. Rotation of shifts

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Volunteer services to hospital program for high school students.
3. Volunteer services to community health agencies.
4. Make a field trip to a local school of Nursing.
5. Collect articles about nursing personnel and care.
6. Develop a bulletin board about nursing personnel and duties.
7. Talk to a professional nurse and inquire about advantages in the field of nursing. .

K. Visual aids

*This Is Nursing* 25 min., color, 16 mm, ANA – NLN Film Library, 10 Columbus Circle, New York City. A study of how a nurse searches out ways to revive the will to live in an apathetic patient, through her supervisor, the hospital team, the wife and visiting nurse. Useful for stimulating discussion in interpersonal relationships.

*Visiting Nurse Association.* 30 min., color, 16mm. ANA – NLN Film Library. Survey of various community services of a typical visiting nurse association.

*Your Career in Nursing.* ANA – NLN Film Library. Recruitment for programs in basic nursing.

*Almost a Miracle.* 26 min., color, 16 mm (1964), ANA – NLN Film Library. The image of a public health nurse, emerging through the eyes of her patients and their families. Depicts a skillful public health nurse in action, rehabilitative procedures, and family health measures.

*Challenge To Serve.* 20 min., color, 16 mm (1963), ANA – NLN Film Library. Young public health nurse meets the challenge of community health, finds the satisfaction of achievement as she brings courage, support, and nursing care to her patients and their families.

*Future Nurse.* 18 min., color, 16 mm, ANA – NLN Film Library. A high school girl explores her dreams through a Future Nurses club. Shows how the Future Nurses club program helps boys and girls find out whether they are interested in nursing or allied health careers, and how it provides opportunities for community services.

*Idea With a Future.* 26 min., color, 16 mm (1962), ANA – NLN Film Library. Explanation of Associate degree nursing-program education in a community college. Designed to provide the student with a better understanding of this new type of educational program.

*Long Day's Journey.* 28½ min., B/W, 16 mm (1963), ANA – NLN Film Library. The special contribution of a public health nurse to the chronically ill and aged living at home.

*Nurse, Please.* 28 min., B/W, 16 mm, ANA – NLN Film Library. A recruiting film for practical nursing, designed to establish the role of the practical nurse in the public mind and to portray the opportunities for a rewarding career in this field.

*Operating Room Nursing Series.* ANA – NLN Film Library. A series of films on nursing in the operating room, presented by the A.N.A. and N.L.N. in cooperation with the American College of Surgeons.

*The Professional Nurse.* 26 min., color, 16 mm (1964), ANA – NLN Film Library. Overall survey which shows through actual nursing situations, the various careers open to nurses, and the educational preparation required for each.

*Psychiatric Nursing: The Nurse – Patient Relationship.* 35 min., B/W, 16 mm (1959), ANA – NLN Film Library. A teaching film which emphasizes the importance of therapeutic nurse-patient relationship and the care and treatment of the mentally ill. A developing relationship between one nurse and patient is portrayed.

*The Air Force Nurse.* (S E P 1241), 20 min., color, 16 mm (1965), Department of the Air Force. This film pictures the life and work of an Air Force nurse. It outlines her qualifications, duties, responsibilities, and contributions to her profession. It directs attention to career advantages in the Air Force Nurse Corps.

*Army Nurse, Soldier of Mercy.* (TV-667), 28 min., B/W, 16 mm, Department of the Army. This film traces the history of military nursing from the time of its beginnings to action in Vietnam.

*New Life for Lisa.* 28 min., B/W, 16 mm (1961), Ethicon, Inc. This film is a documentary on Nursing, showing how one young woman was motivated to choose Nursing; her training, dormitory life, her decision to work in the operating room, and finally her participation in actual open-heart surgery on the little girl, Lisa.

*In These Hands.* 18 min., color, 16 mm (1966), American Association of N. A., Kansas City, Mo. Depicts the daily activities of a Registered Nurse Anesthetist.

L. Additional information may be obtained from:

ANA – NLN Nursing Careers Program
American Nurses Association
Kansas City, Mo.

Committee on Nursing
American Medical Association
535 N. Dearborn Street
Chicago, Illinois 60610

U. S. Army Recruiting (Main Station)
1006 Broad Street
Newark, New Jersey 07102

American Association of Industrial Nurses, Inc.,
79 Madison Avenue
New York, New York 10016

Veterans Administration, Office of Personnel
Washington, D. C. 20430
or Personnel Officer of any VA hospital

U. S. Army Recruiting Station
Federal Bldg., 402 E. State Street
Trenton, New Jersey 08608

M. Bibliography

*Do You Want To Be a Nurse ?* New York: National League for Nursing, March 1966, 22 pp., free

*General Duty Nurse.* Trenton, New Jersey: New Jersey Department of Labor and Industry, April 1969, 17 pp., free

*Introduction to Schools of Nursing.* Elizabeth, New Jersey: Elizabeth General Hospital and Dispensary, 1966, 20 pp., free

*Join the Hospital of Tomorrow Today.* Livingston, New Jersey: St. Barnabas Medical Center, 1 pp., free

*Medical Service Corps.* New York: United States Navy Nurse Corps, 1967, 24 pp., free

*Nurse – A Position for You With the American Red Cross as a Nursing Consultant.* Washington, D.C.: American National Red Cross, September 1968, 1 pp., free

*Nurse, Registered.* Columbus, Ohio: Ohio State Employment Service, Jan. 1968, 3 pp., free

*Professional Nurse Traineeship Program.* Washington, D.C.: U.S. Department of Health, Education and Welfare, August 1968, 11 pp., free

*Something New in White.* Washington, D.C.: U.S. Department of Health, Education, and Welfare, rev. 1967, 5 pp., free

*Special Nurse Research Fellowships.* Washington, D.C.: U.S. Department of Health, Education and Welfare, 1967, 8 pp., free

*The Hospital School of Nursing.* Chicago, Illinois: American Hospital Association 1967, 8 pp., free

*The New Look in Nursing.* New York: Columbia University Department of Nursing, 4 pp., free

*The Professional Nurse in the U.S. Air Force.* Washington, D.C.: U.S. Government Printing Office, 1967, 17 pp., free

*This Is Nursing.* Washington, D.C.: American Association For Health, Physical Education, and Recreation, 3 pp., free

*This Is School Nursing.* Washington, D.C.: American Association For Health, Physical Education, and Recreation, 5 pp., free

*What It's Like To Be a U.S. Army Nurse.* Washington, D.C.: Department of the Army Office of the Surgeon General, October 1968, 2 pp., free

N. Texts and references

Pelley, Thelma, *Nursing – Its History, Trends; Philosophy, Ethics, and Ethos,* 1st Ed., 1964. W.B. Saunders Co., Philadelphia

Dolan, Josephine, R.N., M.S., *Goodnow's History of Nursing,* 12th Ed., 1968. W.B. Saunders Co., Philadelphia.

Fuerst, Elinor V., R. N., M.A., and LuVerne Wolff, R.N., M.A., *Fundamentals of Nursing*, 4th Ed., 1969. J.B. Lippincott Company, Philadelphia

Bullough, Bonnie, M.S., R.N., and Vern Bullough, Ph.D., *The Emergence of Modern Nursing*, 2nd Ed., 1969. Macmillan Co., New York

Rogers, Martha E., R.V., Sc.D., *Educational Revolution in Nursing*, 1st Ed., 1961. Macmillan Co., New York

O. Magazines

*R. N. Magazine*. P.O. Box 56, Oradell, New Jersey 07649

*Today's Health*. 535 N. Dearborn Street, Chicago, Illinois 60610

*Bedside Nurse*. 250 W. 57th Street, New York, New York 10019

*The American Journal of Nursing*. 10 Columbus Circle, New York, New York 10019

*Nursing Outlook Magazine*.10 Columbus Circle, New York, New York 10019

P. Pamphlets

*Should You Be a Nurse?* New York Life Insurance Company, New York, New York 10010

*Be a Nurse*. New Jersey Hospital Association, Highway 206, Princeton, New Jersey 08540

*What You Should Know About Becoming a Nurse*. Career Information Institute, Inc., New York, New York 10016

**Licensed Practical Nurse**

*An important member of the nursing team is the licensed practical nurse (L.P.N.). The L.P.N. shares in the care of the patient and in the performance of many routine tasks, under the direction of the professional registered nurse. She may also care for chronically ill patients at home or in an extended care facility under the direction of a physician.*

*Photograph shows Health Career student receiving instruction from Licensed Practical Nurse in the use of autoclave, or sterilizer.*

*Sterilization of surgical tools and equipment is but one small yet highly important task required of the trained nurse or licensed practical nurse.*

## Licensed Practical Nurse (L.P.N.)

Licensed practical nurses assist in caring for people who are physically or mentally ill. They provide nursing care requiring technical knowledge but not the professional training of a registered nurse. The licensed practical nurse has gained a prominent place on the health team.

A. Description of work

The Licensed Practical Nurse works under the direction of registered nurses or a physician. She cares for the sick, the injured, the aged person, the convalescent, and the handicapped; gives some medications and injections prescribed by the physician; may assist in changing dressings and giving treatments; observes, records, and reports patient's progress; takes blood pressure, pulse, respiration rates, and temperature; bathes and assists in feeding patients.

B. Personal qualifications

1. Good physical and mental health
2. Conscientiousness
3. Dependability
4. Good appearance
5. Manual dexterity
6. Ability to get along with people
7. Desire to help people
8. Tact
9. Courtesy
10. Willingness to assume responsibilities

C. Education

1. Must have at least 2 years of high school or the equivalent. This varies from state to state.

2. Applicants in some states are required to pass an aptitude test to be accepted in the Practical Nurse program.

D. Training

1. Practical Nursing programs may be conducted by vocational-technical schools, boards of education, and hospitals. In some states they are conducted by community colleges.

2. The basic course in Practical Nursing is one year in length.

3. A Practical Nurse license (L.P.N.) is granted on graduate's ability to pass a State Board of Nursing examination.

E. Advancement

1. Practical nurses can further their nursing skills by participating in in-service education programs sponsored by their place of employment. Workshops are also held by state and national associations.

2. Advancement to registered nurse.

F. Future employment

1. Practical nursing offers a variety of employment opportunities for both men and women.

2. Employment is available in:

a. Hospitals
b. Nursing homes
c. Clinics
d. Public health agencies
e. Private industry
f. Camps
g. Private duty
h. Health centers
i. Doctors' offices

G. Earnings

Current starting salary averages about $5,150 per year.

H. Hours

1. 40 hours per week.
2. Rotation of shifts.
3. May be required to work weekends and holidays.

I. Suggested activities for high school students

1. Join a Health Careers club.
2. Volunteer services to local hospital or health agency.
3. Make a field trip to local hospital
4. Make a field trip to a practical nursing school.
5. Observe practical nurse at work in hospital or other health facility.

*For all visual aids and references, refer to the section on the Registered Nurse.*

## NURSING ASSISTANTS

In the past decade, many new employment opportunities have been opened in the medical field. Specially trained personnel known as nursing assistants have been in great demand. The building of nursing homes and other health facilities has opened the way for special programs to train such personnel. There are three main types of nursing assistants who assist registered nurses. They are generally classified as the Nurse Aide, the Surgical-Technical Aide, and the Psychiatric Aide.

### Nurse Aide

The Nurse Aide is the best known of the nursing assistants. The Nurse Aide may be male or female, and is trained and works under a professional nurse or instructor. Nurse Aides assist in care of patients in hospitals, nursing homes, or health agencies. An aide may make beds; feed patients; escort patients to other areas; bathe patients; distribute food trays and fluids; answer call lights; take temperature, pulse, and respiration rates; clean, prepare and sterilize instruments and supplies; and other simple nursing tasks.

B. Qualifications

1. A high school education (preferred)
2. Good physical and mental health
3. Ability to get along with people
4. Desire to help people
5. A sense of responsibility
6. Cleanliness
7. Dependability
8. Good appearance

C. Training

1. On-the-job training program offered in hospitals and health agencies.

2. Program offered in vocational high school, with supervised clinical experience in a health facility.

3. The length of training varies from 6 weeks to one year, depending on the type of training given by the program.

D. Earnings

Current starting salary averages about $4,800 per year.

E. Hours

1. 40 hours per week.
2. Rotation of shifts.
3. May be required to work weekends and holidays.

*For all visual aids and references, refer to section on Registered Nurse. For suggested activities, see page 49*

*Registered Nurse observes Health Career student as she escorts patient to X-ray department.*

## Surgical-Technical Aide

A. Description

The Surgical-Technical Aide cares for the patients in hospitals' operating rooms or related types of facilities. This type of aide works under the direction of a professional nurse or instructor. Such aides are trained to assist the surgical staff by caring for, maintaining, and operating the equipment during surgery.

B. Qualifications

1. A high school education (preferred)
2. Good mental and physical health
3. Manual skill and dexterity
4. Ability to get along with members of the surgical team
5. Keen sense of responsibility
6. Concern for accuracy
7. Cleanliness
8. Orderliness
9. Emotional stability

C. Training

1. On-the job training program offered in hospitals and health agencies.
2. Programs are offered in vocational high schools.
3. The length of training varies, ranging up to one year of classroom instruction and supervised practice.

D. Earnings

1. Current starting salary averages about $5,000 per year.
2. Extra compensation for "on call" duty.

E. Hours

1. 40 hours per week.
2. May be required to work shifts or "on call."
3. May be required to work weekends and holidays.

*For all visual aids and references, see section on Registered Nurse. For suggested activities, see page*

## Psychiatric Aide

The Psychiatric Aide is trained to deal with patients in a mental hospital or a department of a hospital designed for mentally ill patients. Such aides are usually trained on the job by a professional nurse or nurse instructor. The aides are trained to work closely with patients and to gain the confidence of these patients. This relationship between aide and patient is essential in the therapy for the recovery of the patient. Simple nursing tasks such as bathing, feeding, and dressing patients and taking temperature, pulse, and respiration rates are also done by the psychiatric aide.

B. Qualifications

1. A high school education (preferred)
2. Sense of responsibility
3. Good physical and mental health
4. Understanding
5. Cleanliness
6. Desire to help people
7. Ability to get along with people
8. Tact
9. Courtesy
10. Good appearance

C. Training

1. On-the-job training.
2. The length of training varies from one month to three months of formal classes and clinical experiences.

D. Earnings

1. Current starting salary averages about $4,850 per year.
2. Varies from institution to institution.

E. Hours

1. 40 hours per week.
2. May be required to work weekends and holidays.
3. May be required to work shifts.

F. Suggested activities for high school students.

1. Join a Health Careers club.
2. Volunteer services to local hospital or health agency.
3. Make a field trip to local hospital or health agency.
4. Talk to nursing assistants about advantages of these careers.
5. Observe aides at work in hospital or health agency.
6. Enroll in Health Occupations course while in high school.
7. Secure information about aides in local hospital and health agencies.

*For all visual aids and references, see section on Registered Nurse.*

**Occupational Therapist**

*A Health Career student assists Occupational Therapist in encouraging patient to engage in creative and educational activities.*

## Occupational Therapist

Man has to be needed to have a meaningful existence, and the handicapped in particular need help before they can be "needed." Down through the centuries the need for therapy and rehabilitation for the handicapped has always been present, although not always recognized.

Occupational therapy could be classified as one of the oldest of the healing arts. Both the ancient Egyptians and the ancient Greeks prescribed various activities for therapeutic purposes.

In the 1700's many countries were helping the mentally ill by teaching them some occupational skill. In the late 1790's, the Pennsylvania Hospital for the Insane was using this procedure. In 1815 Thomas Eddy, Secretary of the Board of Managers of New York Hospital, stressed the need of this type of therapy for both the mental and physical welfare of patients.

This profession had its real beginnings at the time other similar professions were being recognized, i.e., at the end of World War I. The need to help disabled veterans of both world wars stimulated the growth of this profession.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Suggested activities
References and texts
Pamphlets

A. Description of work

Occuptional Therapists treat patients of all ages with physical, emotional, social, and educational deficiencies, under the guidance of a physician. Through the use of activities carefully selected for their physical, emotional, educational, and social benefits, each patient is guided to help himself on the road to greater independence and a more meaningful life. Occupational Therapy may be indicated for:

a. Emotional illness
b. Mental retardation
c. Neurological impairment
d. Birth defects
e. Perceptual deficiency
f. Physical injuries
g. Heart disease
h. Problems of aging

B. Personal Qualifications

1. Good physical and mental health
2. Patience
3. Intelligence
4. Manual dexterity
5. Interest and desire to help people
6. Ability to get along with people
7. Neatness
8. Tact
9. Adaptability
10. Understanding
11. Ability to observe and report

C. Duties

Under direction of a physician, the occupational therapist helps patients to cure themselves by "doing." He or she arranges, encourages, and supervises participation in:

1. Creative activities – music, art
2. Educational activities – reading, writing, perceptual training
3. Daily living – homemaking, self-care
4. Manual activities – crafts, industrial skills
5. Functional activities – use of prostheses, adapted equipment
6. Recreational activities – individual, group activities

D. Education

High school graduate with courses in English, Biology, Social Studies, Language, Mathematics, Chemistry or Physics.

E. Training – College Training Programs:

*Certificate Course.* Length of course: 22 months, including 8 months' clinical experience.

*Degree Course* – B.S. plus Certificate. Length of course: 4 academic years plus 8 months' clinical experience.

*Graduate Course* – M.A. OTR or eligible for OTR with college degree. Length of course: 1 academic year plus 12 months' clinical practice.

F. Advancement

Occupational Therapy offers virtually unlimited opportunities for both men and women. With the increased national emphasis on health, many positions at all levels are waiting to be filled. Experienced therapists are needed as teachers, researchers, and administrators, both in this country and abroad.

There is a great demand for occupational therapist positions in the Public Health Service, Navy, Air Force, and Army, as well as with the Federal Government Service and hospitals.

G. Future employment

Demand will continue to be great as health facilities improve. Employment may be in:

a. Rehabilitation centers
b. General and special hospitals
c. Special schools
d. Home-care programs
e. Community health centers
f. Nursing homes
g. Psychiatric hospitals and clinics
h. Military hospitals
i. Colleges and universities
j. Research

H. Earnings

1. Current yearly starting salary range $8,000–$10,000.
2. Experienced: $14,000 and up.

I. Hours

Work week is usually 40 hours.

J. Suggested activities for high school students

1. Join a Health Careers club.
2. Volunteer services to hospital Occupational Therapy department.
3. Discuss activities in O.T.
4. Make a field trip to a rehabilitation center.
5. Describe the functions of the Occupational Therapy department.
6. Observe an occupational therapist at work.
7. List personal qualifications for O.T.
8. Discuss opportunities in future employment.
9. Discuss possible disadvantages in occupational therapy.
10. Discuss salary and working conditions expected as an occupational therapist.

K. Visual aids

*Occupational Therapy Story*. 17 min., 16 mm, B/W, American Occupational Therapy Association. Describes the profession of Occupational Therapy. Designed to encourage students' interests in career possibilities of the field.

*Target*. 12 min., 16 mm, color, American Occupational Therapy Association. This film tells a story of a young man trying to decide on a career who recalls a visit to a rehabilitation center, where he saw three cases being treated in occupational therapy.

*To Pick a Life*. 7 min., 16 mm, color, American Occupational Therapy Association. Tells the story of the role of the occupational therapist in rehabilitation and retraining the physically handicapped.

*Armed Forces – Medical Specialists.* 14 min., 16 mm, color, Department of the Army. Describes duties, responsibilities, and contribution of the professional dietitian, occupational therapist, and the physical therapist in a hospital setting, as performed by armed forces specialists.

*Horizons Unlimited.* (3033), 28 min., 16 mm, color, Modern Talking Picture Service. This film presents information on a wide range of rewarding careers in medicine and allied fields. It depicts careers in rehabilitation, social work, medical technology, dietetics, and other professional careers in hospitals, as well as medical office work.

*His Physical Well-Being.* 29 min., 16 mm B/W, International Film Bureau Inc. Physiatrist and occupational therapist demonstrate room and bed preparation for a hemiplegic patient in early recovery.

L. Additional information may be obtained from:

American Occupational Therapy Association
251 Park Avenue South
New York, New York 10010

American Medical Association
535 North Dearbon Street
Chicago, Illinois 60610

National Association for Mental Health
10 Columbus Circle
New York, New York 10019

National Easter Seal Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60012

Veterans Administration
Office of Personnel (Code 054)
Washington, D. C. 20430

M. Bibliography

*Careers in the U.S. Public Health Service – Occupational Therapist.* Washington, D.C.: U.S. Dept. of Health, Education, and Welfare, 1967, 7 pp., free

*Four Educational Opportunities for Occupational Therapy Students.* Washington, D.C.: Dept. of the Army, Office of the Surgeon General, Nov. 1968, 12 pp., free

*Occupational Therapy Assistant.* Moravia, New York: Chronical Guidance Publications, Inc., 1968, 4 pp., 35¢

*The Occupational Therapist.* New York: National Association for Mental Health, April 1968, 4 pp., free

*Where to Look for Financial Help.* New York: American Occupational Therapy Association, 1969, 2 pp., free.

N. References and texts


Dunton, W.R. Jr. and S. Licht. *Occupational Therapy*, 2nd Ed. Springfield, Illinois: Charles C. Thomas

MacDonald, E.M., *Occupational Therapy in Rehabilitation*, 2nd Ed. Baltimore, Md.: Williams and Wilkins

Fidler, Gail S. and Jay W., *Occupational Therapy*., New York: Macmillan Co.

American Occupational Therapy Association, *Occupational Therapy Reference Manuals for Physicians*. Dubuque, Iowa: W.C. Brown

Lovejoy, Clarence E. and Theodore S. Jones, *Lovejoy–Jones College Scholarship Guide*. New York: Simon & Schuster, Inc.

Brownstein, Samuel C., Mitchell Weiner, and Stanley Kaplan, *You Can Win a Scholarship*. New York: Barron's Educational Series, Inc.

*National Defense Student Loan Program*. Office of Education, U.S. Dept. of Health, Education and Welfare, Washington, D.C. 20202, U.S. Government Printing Office

Mayers, *Occupational Health*. Baltimore, Md.: William & Wilkins (1969)


O. Pamphlets


*Occupational Therapy – A New Life for the Disabled*. Public Affairs Pamphlets (No. 420), 381 Park Ave. South, New York, New York 10016 (25¢).

*Occupational Therapy Handbook* American Occupational Therapy Association, 251 Park Avenue South, New York, N.Y. 10010

*Your Educational Requirements for Occupational Therapy*. American Occupational Therapy Association, 251 Park Avenue South, New York, N.Y. 10010

*Occupational Therapy – Before You Enter*. American Occupational Therapy Association, 251 Park Avenue South, New York, N. Y. 10010

*Colleges and Universities Offering Courses in Occupational Therapy*. American Occupational Therapy Association, 251 Park Avenue South, New York, N. Y. 10010

*Rehabilitation Services*. Howard A. Rusk, M.D. New York Life Insurance Company, Box 51, Madison Square Station, New York, N.Y. 10010

*Good Training, Good Jobs*. MDTA Occupational Therapy Assistant Program, Office of Education, U.S. Department of Health, Education and Welfare, 400 Maryland Avenue S.W., Washington, D.C. 20202

*Newsletter*. American Occupational Therapy Association, 251 Park Avenue South, New York, N.Y. 10010

## Optometrist

Modern optometry can trace back its birth to the work of a number of Europeans in the 19th century. These Europeans were interested in measuring the eye and producing instruments for testing sight. Significant discoveries were made through research in physics, mathematics, and optics. These discoveries made such an impact on the professional organizations that the outcome resulted in the legal recognition of Optometry as a profession.

There are two noteworthy landmarks in the development of the profession of Optometry. In 1897, a National Association of Optometrists was formed. Four years later, the state of Minnesota passed the first state law regulating the practice of Optometry.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
References and Texts
Bibliography
Suggested activities
Pamphlets or magazines

A. Description of work

The optometrist's job is to examine eyes and to correct defective eyes through the use of lenses or vision training.

The optometrist should not be confused with the ophthalmologist. An ophthalmologist is a physician who specializes in the medical and surgical care of the eyes and may prescribe drugs or other treatment, as well as lenses.

B. Personal qualification

1. Good mental and physical health
2. Good vision and coordination
3. Able to get along with people
4. Accuracy
5. Intelligence
6. Pleasing personality
7. Neatness
8. Good personal appearance
9. Orderliness
10. Desire and interest to help people
11. Tact
12. Courtesy

C. Duties

1. Detects visual difficulties by means of various instruments
2. Examines eyes
3. Prescribes and provides lenses

4. Prescribes eye exercises
5. Refers patients to an ophthalmologist if necessary
6. Teaches in schools of optometry
7. Does research in aspects of vision care

D. Education

High school graduate with courses in English, Social Studies, Mathematics, Chemistry, Biology, Foreign Language, and Physics.

Two years of pre-optometry at an accredited junior college.

E. Training

1. Four years at an Optometry School or College.

2. Graduate must take the State Board Examination of the state in which he expects to practice.

F. Advancement

Opportunities are good for those who prefer to teach or to work for private industry, the public health service, or the military.

Success in own private practice depends on ability and location.

G. Future employment

The demand for optometrists is increasing faster than the supply. Excellent opportunities are open in this field because as people become more health conscious through education, the demand for eye-care services will become greater. Optometrist can go into the following specialties:

1. Private practice
2. Research
3. Teaching
4. Industrial optometry
5. Contact lenses
6. Children's vision
7. Aid to partially sighted
8. Highway safety and motorist vision

Some 5 percent of practicing optometrists are women. Some work in the field of visual training, others work with children.

H. Earnings

1. Current starting yearly salary range $10,000–$12,000.
2. Experienced average about $25,000 per year.

I. Hours

1. Work week is usually 40 hours.
2. Work schedule may include evenings and Saturday.
3. Sets own hours if in private practice.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Discuss duties of an optometrist.
3. Discuss educational requirements for a career in Optometry.
4. Visit with an optometrist at work and discuss opportunities in this health field.
5. Write for information on Optometry or visit school library.
6. Obtain a list of accredited schools of Optometry.

K. Visual aids

*Optometry – A Career With Vision.* (2373) 15 min., color, 16 mm, Modern Talking Picture Service. This film discusses the career of an optometrist, showing his training, his practice, and his work in the community.

*Lenses and Optical Instruments.* 13 min., color, 16 mm, (Coronet Films), Corning Museum of Glass. Explains the principles by which lenses function, the uses of lenses, different kinds of optical instruments and how they operate.

*Your Children's Eyes.* 20 min., 16 mm, British Information Service. Rest, recreation, and good food are necessary to healthy eyesight. Amusing animated diagrams depict the physiology of the eye and explain what is meant by long and short eyesight.

L. Additional information may be obtained from:

American Optometric Association
7000 Chippewa Street
St. Louis, Missouri 63119

N. J. Optometric Association
Greenwood Avenue
Trenton, N. J.

U. S. Department of Labor
Wage and Labor Standard Administration, Women's Bureau
Washington, D. C. 20210

American Orthoptic Council
3400 Massachusetts Avenue, N.W.
Washington, D.C. 20007

M. Bibliography

*Scholarships In Optometry.* St. Louis, Missouri: American Optometric Association, 30 pp.

*Optometry.* Chicago, Illinois: Health Careers Council of Illinois, 4 pp.

*Optometry, a Career With Vision.* St. Louis, Missouri: American Optometric Association, 32 pp.

*Careers in Optometry*. Washington, D.C.: B'nai B'rith Vocational Service, 15 pp.

*Optometrist*. Moravia, New York: Chronical Guidance Publications, Inc., 4 pp.

N. Texts and references

Davson, *The Physiology Of The Eye*, 2nd Ed. Baltimore, Md.: Williams & Wilkins Co. (1963)

Ellis and Smith, *Handbook of Ocular Therapeutics and Pharmacology.*, 3rd Ed. St. Louis, Mo.: C. V. Mosby Co. (1969)

Elmstrom, *Optometric Practice Management*. Philadelphia, Pa.: Chilton Book Co. (1963)

Epting and Mogret, *Opthalmic Mechanics and Dispensing*. Philadelphia, Pa.: Chilton Book Co. (1964)

Fonda, *Management of the Patient With Subnormal Vision*, 2nd Ed. St. Louis, Mo.: C. V. Mosby Co. (1970)

Atkinson, Thomas G., *Oculo-Refractive Cyclopedia and Dictionary*, 3rd Ed. Chicago, Illinois: Professional Press

Hirsch and Wick, *The Optometric Profession*. Philadelphia, Pa.: Chilton Book Co.

Allen, *Vision and Highway Safety*. Principles of Optometry Series. Philadelphia, Pa.: Chilton Book Co. (1970)

O. Pamphlets

*Optometry*. American Optometric Association, 700 Chippewa Street, St. Louis, Missouri, 63119

*Why Not Be an Optometrist? – Careers For Women*. U.S. Department of Labor, Wage and Labor Standards Administration, Women's Bureau, Washington, D.C., 20210

## Orthotists and Prosthetists

There has always been a need of the orthotic-prosthetic art. Even in pre-historic times, men lost their limbs. The Greek historian Herodotus wrote, around 484 B.C., of a soldier who cut off his foot to escape the chains of his captives and later replaced it with a wooden substitute. In 1858, an artifical leg was found in a tomb in Capua which was believed to have been made around 300 B.C. Thus, man has from the earliest times seen the need for rehabilitation of disabled members of society.

It was not until World War I that real changes in this field began to take place. The Surgeon-General of United States recruited the resources of the practicing orthotists and prosthetists to care for soldiers whose limbs had been amputated. The result was an ever-expanding interest in orthotics and prosthetics.

Two goals are aimed for in this professional field. First, to restore the orthopedically disabled patient as close to maximum function as possible, and secondly, to make the device as nearly life-like as possible.

Suggested instructional procedures

Lecture
Discussion
Visual aids
Bibliography
References and texts
Pamphlets
Suggested activities

A. Description of work

The **Orthotist** makes and fits orthopedic braces for the support of weakened body parts and/or the correction of body defects.

The **Prosthetist** makes and fits artificial limbs.

The orthotist and prosthetist work closely with the physician, surgeon, and therapist to provide total rehabilitation for the orthopedically disabled. They fabricate devices which are prescribed by the doctor and are designed to give maximum possible function to the patient.

B. Personal qualifications

1. Good physical and mental health
2. Manual dexterity
3. Accuracy
4. Patience
5. Keen sense of responsibility
6. Ability to get along with people
7. Real sense of concern for the well-being of the disabled
8. Mechanical skill
9. Courtesy
10. Tact

C. Duties

1. Evaluates the condition of the patient.
2. Examines patient and makes accurate physical measurements of him.
3. Designs a device that will meet the patient's individual needs and fabricates it from various materials, such as:
   - leather
   - wood
   - plastic
   - steel
   - aluminum
4. Before the device is completed, gives the patient at least one, and possibly several fittings.
5. Fits the appliance when completed and makes necessary adjustments.
6. Repairs and services appliances if necessary.

D. Education

High school graduate with courses in Mathematics, Mechanical Drawing, Shop Courses, Physics, Biology, English, Anatomy and Physiology, Social Science.

E. Training

1. A 2-year Associate in Arts degree course in Orthotics and Prosthetics.
2. A 4-year Bachelor of Science degree program in Orthotics and Prosthetics.
3. Candidates with a Bachelor of Science degree may take the certification examination after 1 year of practice under supervision of a certified orthotist or prosthetist.
4. Graduates of the certified 2-year program may take the certification examination after 2 years of practice under supervision.
5. Certificate is issued by the American Board for Certification in Orthotics and Prosthetics.

F. Advancement

The role of the orthotist or prosthetist has changed greatly in the last two decades. He is no longer regarded as a technician who can work with various materials to produce orthopedic devices prescribed by the doctor. He is, rather, a qualified professional who has learned, through formal education, why a prosthesis or an orthosis is constructed in a certain way. His work is responsible and challenging and can bring a feeling of personal satisfaction and true accomplishment. With suitable experience he can readily advance to supervisory or administrative positions.

G. Future employment

Employment opportunities are excellent. Orthotists and prosthetists may work in:

a. Hospitals
b. Privately owned laboratories
c. Veterans administration
d. Military services
e. Research
f. Teaching
g. Health agencies
h. Rehabilitation centers

H. Earnings

1. Current starting yearly salary range $6,500–$8,000
2. Apprentice's starting salary range $5,000
3. Experienced and supervisory salary range $10,000 and up

I. Hours

1. Work week is usually 40 hours.
2. Work schedule may include evenings and Saturdays.
3. Sets own hours if self-employed.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Volunteer services to a community health agency and observe and work side by side with rehabilitation personnel.
3. Discuss advantages and disadvantages of a career as orthotist or prosthetist.
4. Discuss employment opportunities of orthotists and prosthetists.
5. Discuss salary and working conditions.
6. Make a field trip to a privately owned laboratory and have students see the facilities and equipment used in this type of career.
7. Discuss educational requirements of a career as orthotist or prosthetist.
8. Discuss how one meets the requirements for certification in a health field.

K. Visual aids

*No Man Walks Alone.* National Paraplegic Foundation, Inc. 27 min., 16 mm. This film, narrated by Fredric March and Eli Wallach, was filmed at the Kessler Institute for Rehabilitation, West Orange, New Jersey, under the guidance of Harold Potts, Director of Physical Therapy, and Henry H. Kessler, M.D., Medical Director. It describes the roles of the nurse, social worker, physical therapist and other rehabilitation personnel in the rehabilitation of a paraplegic patient. It indicates the various skills and appliances needed to restore the patient to participation in society.

*Early Development of Ambulation: The Unilateral Below-Knee Amputee.* UCLA Medical Center. 15 min., 16 mm, This film shows a child being fitted with a prosthesis, when readiness is indicated.

L. Additional information may be obtained from:

American Orthotic and Prosthetic Association
1440 N. Street, N.W.
Washington, D.C. 20005

American Rehabilitation Counseling Association
1605 New Hampshire Avenue
Washington, D.C. 20009

The National Easter Seal Society for Crippled Children and Adults
2023 W. Ogden Avenue
Chicago, Illinois 60612

M. Bibliography

*Traineeship in Prosthetics and Orthotics.* Washington, D.C.: U.S. Department of Health, Education and Welfare (1968), 4 pp.

N. References and texts

Bowley & Gardner, *The Young Handicapped Child*, 2nd Ed. Baltimore, Md..: William & Wilkins (1969)

Mital and Pierce, *Amputees and Their Prostheses.* Boston, Mass..: Little, Brown and Co. (1970)

Rusk, *Rehabilitation Medicine*, 2nd Ed. St. Louis, Mo.: C.V. Mosby Co. (1964)

O. Pamphlets

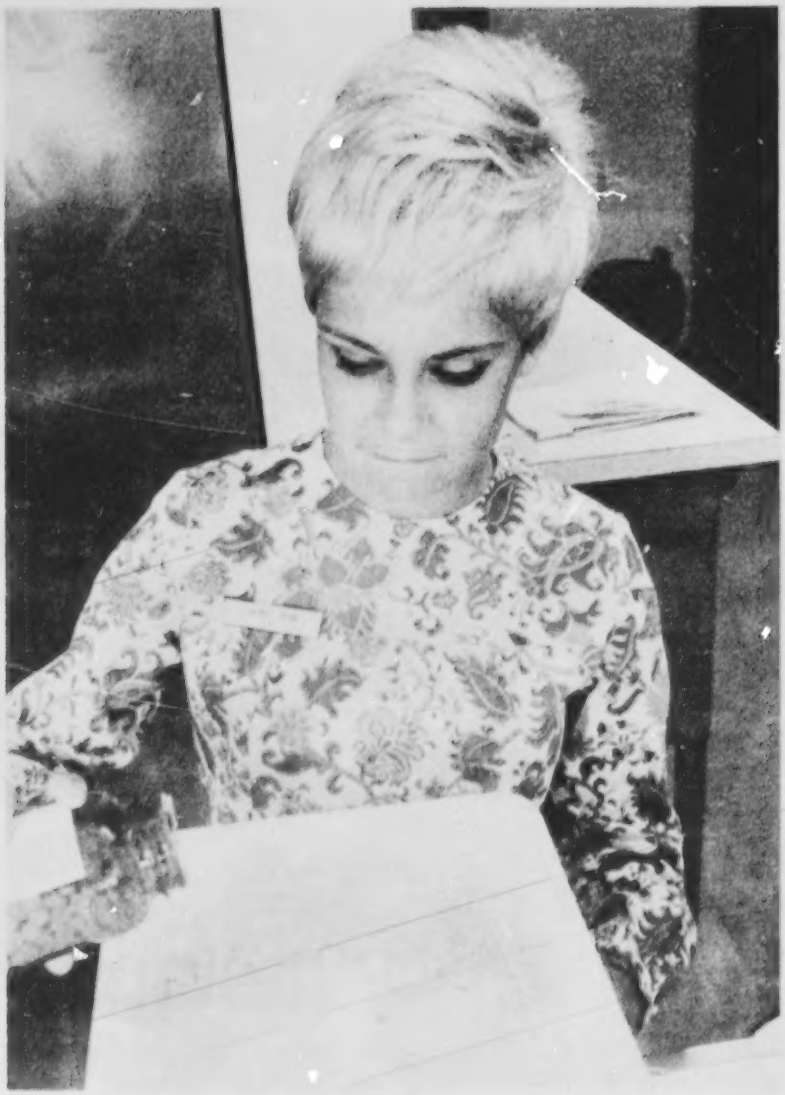
*Want To Make the World Better?* National Easter Seal Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612

*Careers in Rehabilitation.* National Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612

*Easter Seal Bulletin.* National Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612

*When You Meet a Handicapped Person.* National Easter Seal Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612

*Rehabilitation Literature.* National Easter Seal Society for Crippled Children and Adults, 2023 West Ogden Avenue, Chicago, Illinois 60612



**Pharmacist**

*Health Career student learns how pill distribution is accurately controlled in the pharmacy by operating the pill counter.*

## Pharmacist

The pharmacist is commonly known as the druggist. The druggist runs or operates a pharmacy or drug store. The first pharmacy known operated in Baghdad in the eighth century. However in every primitive society known, the medicine man has existed. But these medicine men cannot be classified as pharmacists no matter how one stretches the imagination. The medicine man of the past and of current primitive societies cannot be compared to the personnel in the modern scientific field of pharmacy.

The term "pharmacist" can be traced to the time of Aristotle. This term still means the same today as it did for Aristotle, i.e., one who compounds drugs, medicines, or poisons.

Pharmacy as a profession grew slowly in this country. The Philadelphia College of Pharmacy was founded in 1821. Not only did pharmacy have a late start in this country, it was also hampered and side-tracked by the popular appeal of the traveling medicine show. In 1906, the Federal Pure Food and Drug Act was passed, and the traveling medicine show disappeared from the public scene. The passing of this act re-established the public's faith in pharmacy and thus allowed the profession to grow at a rapid pace.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Bibliography
References and texts
Suggested activities
Pamphlets

A. Description of work

The Pharmacist is a specialist who dispenses drugs and medicines and provides information on their use to help protect people's health. Today's pharmacist may be a man or a woman, for careers in pharmacy are not limited to men alone. The pharmacist today is also knowledgeable about sickroom supplies and appliances, as well as being an expert on drugs.

B. Personal qualifications

1. Good physical and mental health
2. Dependability
3. Conscientiousness
4. Orderliness
5. Accuracy
6. Cleanliness
7. Good judgment
8. Willingness to learn
9. Sincere interest in people
10. Ability to get along with people
11. High ethical standards

C. Duties

1. Compounds Medicines
2. Tests and dispenses medicines.
3. Sells medicines and sickroom supplies.
4. Maintains a stock of drugs, chemicals, and other pharmaceutical supplies.
5. Keeps records in accordance with legal regulations.
6. Teaches

D. Education

High school graduate with liberal arts and sciences background. English, Mathematics, Chemistry, Biology, Physics, Social Studies, including laboratory courses in the sciences.

E. Training

1. Completion of a 5-6 year program of study in a college of Pharmacy, leading to a degree in pharmacy.
2. One year as an intern in pharmacy.
3. State Board Examination to practice Pharmacy.

F. Advancement

Advancement opportunities are excellent. There are several kinds of pharmacies, and the range of the pharmacist's professional work depends to some extent upon the type of pharmacy in which he is employed. The prescription pharmacy handles pharmaceuticals and other items relating to health care, while the general community pharmacy handles other merchandise which is found traditionally in drug stores. There are excellent professional opportunities in the general community pharmacy and in the large chain pharmacies.

G. Future employment

Pharmacists' services are in good demand, and should increase in the future. The increase in the number of hospitals being built and the constant development of new drugs suggest a continued favorable employment outlook for the future. Places of employment may include:

1. Hospitals
2. Industrial pharmacies
3. Local drug stores
4. Government pharmacies
5. Teaching
6. Research
7. Armed forces
8. Retail sales
9. Wholesale sales
10. Bureau of Narcotics
11. Community Health Agency
12. Food and Drug Administration

H. Earnings

Current starting yearly salary range $10,000–$14,000.
Salary varies in accordance with type of service practiced. Experienced average about $12,000–$17,000.

I. Hours

1. Work week is usually 40 hours.
2. Work schedule may include evenings and weekends.
3. Own hours if self-employed.

J. Suggested activities for high school students

1. Join a Health Careers club.
2. Find part-time job in local pharmacy making deliveries.
3. Volunteer services to local hospital.
4. Observe a pharmacist at work.
5. Discuss legal responsibilities of a pharmacist.
6. Obtain a list of accredited schools of Pharmacy.
7. Discuss opportunities in the field of Pharmacy.
8. Discuss possible disadvantages in the field of Pharmacy.
9. Make a field trip to local drug store.
10. Discuss personal qualifications needed for a career in Pharmacy.
11. Discuss the educational requirements a pharmacist must meet.
12. Describe how pharmacy personnel check and restock supplies.
13. Discuss services provided by the hospital pharmacy.

K. Visual aids

*Day of Judgment (Pharmacy Recruitment).* 24 min., color, 16 mm (1966), Eli Lilly and Company. This film is directed toward high school students, is narrated in part by Walter Pidgeon, and shows the various facets of a career in pharmacy. It is an ideal film for high school careers days, and should be followed by a presentation by the guidance counselor or health careers teacher or pharmacist, who might point out that there are other facets of pharmacy besides community practice.

*This Is Pharmacy* (1155). 27 min., color, 16 mm, Sterling Movies. This film acquaints young people with the great variety of careers available in the field of pharmacy, such as community pharmacy practice, research, specialization, hospital service, the pharmaceutical industry, marketing and distribution, and government service.

*Bartlett & Son.* 35 min., color, 16 mm, Modern Talking Picture Service. This film tells the story of today's retail druggist and pharmacist.

*Time for Tomorrow.* 20 min., B/W, 16 mm, Sterling Movies. Shows how a pharmacy student spends his time in laberatory, classroom, and after school hours.

L. Additional information may be obtained from:

American Pharmaceutical Association
2215 Constitution Avenue, N.W.
Washington, D.C. 20037

American Society For Pharmacology and Experimental Therapeutic, Inc.
9650 Rockville Pike
Bethesda, Maryland 20014

American Society of Hospital Pharmacists
4630 Montgomery Avenue
Washington, D.C. 20014

U. S. Department of Labor
Women's Bureau, Wage and Labor Standards Administration
Washington, D.C. 20210

M. Bibliography

*Education in the Sciences.* Philadelphia, Pa.: Philadelphia College of Pharmacy and Science, (1968), 25 pp (free)

*Careers in the U.S. Public Health Service – Pharmacist.* Washington, D.C.: U.S. Department of Health, Education and Welfare (1967), 8 pp (free)

*An Open Field.* Washington, D.C.: American Pharmaceutical Association, 3 pp (free)

*Key Facts About the U.S. Prescription Drug Industry.* Washington, D.C.: Pharmaceutical Manufacturers Association (1968), 11 pp (free)

N. References and texts

Deno, Rowe, and Brodie, *The Profession of Pharmacy.* Philadelphia, Pa.: J. B. Lippincott Co. (1966)

Gable, Fred B., *Opportunities in Pharmacy Careers.* New York: Universal Publishing and Distributing Corp. (1964)

Kramer, James E., *Your Future in Pharmacy.* New York: Richard Rosen Press (1964)

Harris et al., *Drug Dependence.* Austin, Texas: University of Texas Press (1970)

Hicks and Fink, *Psychedelic Drugs.* New York: Grune and Stratton (1970)

Hoffner and Osmond, *The Hallucinogens.* New York: Academic Press (1967)

O. Pamphlets

*Careers:*
Hospital Pharmacy Practice
Hospital Pharmacy Residency Programs
Continuing Education Programs
Personnel Placement Service
American Society of Hospital Pharmacists,
Department of Society Services,
4630 Montgomery Avenue,
Washington, D.C. 20014

*College Cost Today.* New York Life Insurance Co., Career Information Service, P.O. Box 51, Madison Square Station, New York, New York 10010

*Need A Lift?* The American Legion, Department S, P.O. Box 1005, Indianapolis, Indiana 46206

*Facing Facts About College Admissions.* The Prudential Insurance Company, Education Department, P. O. Box 36, Newark, New Jersey 07101

*How About College Financing?* The American Personnel and Guidance Association, 1605 New Hampshire Avenue, N.W., Washington, D.C. 20009

*Shall I Study Pharmacy?* American Pharmaceutical Association, 2215 Constitution Avenue, N.W., Washington, D.C. 20037

*What Is A Pharmacist?* Upjohn Company, 7000 Portage Rd., Kalamazoo, Michigan 49001

*Careers in Pharmacy.* B'nai B'rith Vocational Service, 1640 Rhode Island Avenue, N.W., Washington, D.C. 20036

*Careers For Women: Why Not Be a Pharmacist?* U.S. Department of Labor, Wage and Labor Standards Administration, Women's Bureau, Washington, D.C. 20210

**Physical Therapist**

*Physical Therapist instructs patient and Health Career student in proper steps to quick recovery.*

## Physical Therapist

The ancient Greeks as well as other civilizations for centuries used theories and practices that have today been put into a formal occupational structure by the physical therapist. The ancient Greeks were aware of the value of exercise in warm water, of the sun's rays, and of massage. There have been people in the far north countries of Europe who have utilized physical therapy principles for centuries.

The practice of physical therapy has grown as man's knowledge of medicine and himself has grown. After World War I, real progress in this field began to be made. In 1921, with the organizing of a professional association, physical therapy began to achieve professional stature. It has been almost 50 years in existence, and the American Physical Therapy Association has grown considerably.

The value of physical therapy was fully recognized after World War II. It was the experiences obtained by using physical therapy on wounded men that contributed toward the medical acceptance of this practice. Today, every well-staffed hospital has a good physical therapy department.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
References and texts
Suggested activities
Pamphlets

A. Description of work

The Physical Therapist works with patients who are disabled by illness or accident, or born with a handicap. He uses specialized skills to restore physical function and prevent disability following injury or disease. His goal is to help patients reach maximum performance so patients can lead useful, productive lives within the limits of their capabilities.

In addition to Licensed Physical Therapists, there are two other categories of workers in this field, the Physical Therapy Assistant and the Physical Therapy Aide.

B. Personal qualifications

1. Good physical and mental health
2. Genuine desire to help patients
3. Ability to communicate with and inspire confidence in patients
4. Good judgment
5. Sense of responsibility
6. Pleasant personality
7. Intelligence
8. Courtesy
9. Patience
10 Sense of humor

C. Duties

1. As instructed by the physician, the physical therapist organizes and administers therapeutic exercises such as:

    a. Walking and stair-climbing for a patient with paralysis following a stroke.
    b. strenghtening exercises for patient who has fractured his leg.
    c. use of artificial limbs.

2. To improve circulation, the physical therapist uses:
    a. Heat
    b. Massage
    c. Water
    d. Ultrasonic ray treatments

3. The therapist keeps the referring physician informed of patient's progress.

4. He is responsible for evaluating the patient's condition and planning the treatment program for the patient's needs.

D. Education

High school graduate with college preparatory course, including Biology, Mathematics, Physics, Chemistry, English, Social Studies.

E. Training

1. Four-year college program leading to a Baccalaureate degree and qualification in Physical Therapy.

2. College graduates who meet specific requirements in biological, physical, and social sciences have a choice of educational programs leading to professional qualification in physical therapy:

    a. 12-16 month program leading to a Certificate of Proficiency in Physical Therapy
    b. or a 2-year graduate program leading to a Master's degree.

3. Most states require licensure for the practice of Physical Therapy.

4. Graduates of approved programs in Physical Therapy are eligible to take a State Board Examination and be certified as a Licensed Physical Therapist.

F. Advancement

Because the demand for physical therapists greatly exceeds the supply, career opportunities are virtually unlimited. There are many opportunities to advance to supervisory and consultant positions, teaching, and research work.

*Physical Therapy Aide (right) acquaints Health Career student with a Hubbard tank. In its warm, soothing waters the patient is urged to move contracted muscles and find relief from pain and discomfort.*

G. Future employment

1. Rehabilitation centers
2. Schools for crippled children
3. Hospitals' Department of Physical Therapy
4. Nursing homes for the elderly and chronically ill
5. Physicians' offices
6. Physical therapists' clinics and offices
7. The armed forces
8. Foreign Service, Peace Corps, World Health Organization
9. Governmental agencies
10. Community health agencies

H. Earnings

1. Current yearly starting salary $8,000–$10,000
2. Experienced $14,000–$20,000
3. Administrative positions average $15,000–$25,000

J. Suggested activities for high school students

1. Join a Health Careers Club.
2. Visit local hospital or other community health agency and observe a physical therapist at work.
3. Volunteer to work in a camp for handicapped children where there is a physical therapy program.
4. Volunteer to work in physical therapy department at local hospital or community health agency.
5. Talk to a physical therapist about the advantages of this career.
6. Discuss opportunities as a physical therapist.
7. Make a field trip to the Kessler Institute for Rehabilitation.
8. Discuss safety factors observed in care of patients.
9. Discuss duties of the physical therapist.
10. Discuss a possible disadvantage in this health career.
11. Discuss why physical therapists keep detailed records of the progress of each patient.

K. Visual aids

*For Today and Tomorrow*. 22 min, color 16 mm, Radim Films. Film tells the story of a young girl who becomes interested in physical therapy after being in an accident. The viewer is given an opportunity to witness physical therapy in action.

*Horizons Unlimited* (3033). 28 min., 16 mm, color, Modern Talking Picture Service. This film depicts careers in rehabilitation, social work, medical technology, dietetics, and other professional careers in hospitals, as well as medical office work.

*Cost of Hope*. 28 min., 16 mm, B/W, Association Films, Inc. This film presents activities of the professional personnel in a community hospital.

*Getting Around* 29 min., 16 mm., B/W, International Film Bureau, Inc. Physiatrist, public health nurse, and patient show transfer and ambulation techniques in getting in and out of bed and chairs and going up and down stairs.

*Armed Forces – Medical Specialists.* 14 min., 16 mm, color, Department of the Army. Described duties, responsibilities, and contributions of the professional dietitian, occupational therapist, and the physical therapist in a hospital setting, as performed by armed forces specialists.

*Within Your Hands.* 15 min., 16 mm, B/W, American Physical Therapy Association. This film acquaints students with career possibilities and advantages in physical therapy.

*The Physical Therapist, the Nurse, and the Patient With Crutches.* 12 min., 16 mm, International Film Bureau, Inc. An educational documentary film, prepared and narrated by a cast of professionals and filmed within a hospital environment.

*His Physical Well-Being.* 29 min., 16 mm, B/W, International Film Bureau, Inc. Physiatrist and occupational therapist demonstrate room and bed preparation for a hemiplegic patient in early recovery.

L. Additional information may be obtained from:

American Physical Therapy Association
1740 Broadway
New York, New York 10019

Kessler Institute For Rehabilitation
Pleasant Valley Way
West Orange, New Jersey 07052

Department of Allied Medical Professions and Services
American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

National Society for Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60012

M. Bibliography

*Educational Programs Leading to Professional Qualification in Physical Therapy.* New York: American Physical Therapy Association, Oct. 1968, 2 pp., free

*Educational Opportunities for Physical Therapists.* Washington, D.C.: Department of the Army, Office of the Surgeon General, Nov. 1968, 16 pp., free

*Physical Therapy.* Moravia, New York: Chronical Guidance Publications Inc., 1966, 4 pp.

*Traineeship in Physical Therapy*. Washington, D.C.: U.S. Department of Health, Education and Welfare, Vocational Rehabilitation Administration, Nov. 1968, 7 pp., free

N. References and texts

Bernice Krumhanse, *Opportunities in Physical Therapy*. New York: Universal Publishing and Distributing Corporation, Vocational Guidance Manuals

Buchwald, Edith, *Physical Rehabilitation for Daily Living*. New York: McGraw-Hill Book Company

Grant, W. Russell, *Principles of Rehabilitation*. Baltimore, Md.: Williams and Wilkins

Rusk, Howard A., *Rehabilitation Medicine*. St. Louis, Mo.: C.V. Mosby Co.

O. Pamphlets and magazine

*The Career for You*. American Physical Therapy Association, 1740 Broadway, New York, New York 10019

*You Can Have a Rewarding Career as a Professional in Physical Therapy*. N. J. State Department of Health, Trenton, New Jersey 08625

*Career Facts*. American Physical Therapy Association, 1740 Broadway, New York, New York 10019

*Sources of Financial Assistance*. American Physical Therapy Association, 1740 Broadway, New York, New York 10019

*Physical Therapy Journal of the American Physical Therapy Association*, 1740 Broadway, New York, New York 10019

*List of Approved Schools in Physical Therapy*. American Physical Therapy Association, 1740 Broadway, New York, New York 10019

Physician

*Physician discusses medication orders and history of patient with Health Career student.*

## Physician

The first great physician known to recorded history was born on the small Greek island of Cos, almost 500 years before Christ. Hippocrates, the great physician, was born about 460 B.C. He is credited with orginating some theories concerning the practice of medicine and in the field of anatomy. He could be credited for making the profession a scientific one. In fact, the oath which he administered to his students is still administered to a physician about to begin his career. The Hippocrates Collection is believed to be the first authoritative record of this profession.

The other great ancient civilizations also influenced and helped develop medical theories of diagnosis and treatment. China, India, and Egypt had very influential roles in this field. The great medical school at Alexandria used not only the Greek knowledge and theories, but incorporated some of the Egyptian as well. The ancient Romans placed greater stress on the public health rather than the medical profession as such. Great pure-water works were built and adequate sewage systems developed. Yet the Romans had their great physicians as well. Galen was noted for his extensive records.

In the Middle Ages, the monks in the monasteries were responsible for keeping this profession alive and recorded. It was not until the Renaissance that a renewal of interest in medicine took place.

Many inventions helped the progress of medicine. The world of cells came to man's knowledge after 1600, when the microscope was invented. Germs have been seen under a microscope for less than a hundred years. X-rays made the interior of the body visible. Thus, step by step, medical science advanced. Today, continual new discoveries and the possibility of major breakthroughs in the areas which have long plagued man are accepted almost routinely.

Suggested instructional procedures

Lecture
Discussions
Visual aids
Bibliography
References and texts
Pamphlets and magazine
Suggested activities

A. Description of work

A Physician diagnoses disease, prescribes medicine, and treats diseases and disorders of the human body. He also treats people who are injured, and works for the prevention of illness and disease.

B. Personal qualifications

1. Good physical and mental health
2. Personal integrity
3. Intelligence
4. Sympathy
5. Tact
6. Pleasing personality

7. Sincere interest in people and desire to help them
8. Courtesy
9. Ability to get along with people
10. Emotional stability
11. Scientific aptitude
12. Dedication – willingness to subordinate personal desires where they conflict with duties

C. Duties

1. Treats patients of all ages.
2. See patients in office.
3. Visits patients in hospitals.
4. Makes house calls.
5. Treats accident victims.
6. May teach in medical schools or hospitals.
7. Refers patients to a specialist when necessary – for surgery, for instance – but resumes care when the crisis is past.

D. Education

High school graduate with courses in English, Mathematics, Social Studies, Foreign language, Anatomy and Physiology, Physics, Chemistry, and Biology.

4 years of Liberal Arts study in an accredited college.

E. Training

1. 4 years of medical school
2. 1 year's hospital internship
3. For specialization, add 2 to 5 more years.
4. Graduates required to take the National Board's Medical Examination for licensure.

F. Advancement

A physician who desires to practice in one of the specialty branches of medicine needs additional training following his internship. This additional hospital training takes from two to five years, depending on the medical specialty. The major medical specialties are described:

1. **Administrative Medicine.** Deals with the administration of medical programs, for instance in business, government, public health programs, and hospitals.

2. **Anesthesiology.** Administration of various forms of anesthetic drugs necessary during operations or diagnoses.

3. **Dermatology.** Diagnosis and treatment of diseases of the skin.

4. **Family practice.** Evaluation of a patient's or family's total health care needs and provision of personal medical care in one or more fields of medicine.

5. **Internal medicine**. Diagnosis and surgical treatment of diseases of the internal organs such as the heart, liver, and lungs.

6. **Neurological surgery**. Diagnosis and surgical treatment of the brain, the spinal cord, and nerve disorders.

7. **Obstetrics and Gynecology**. Diagnosis and treatment of diseases of the female reproductive organs and also the care of women during and following pregnancy.

8. **Ophthalmology**. Diagnosis and treatment of diseases or defects of the eye.

9. **Orthopedic surgery**. Diagnosis and medical or surgical treatment of diseases, fractures, and deformities of the bones and joints.

10. **Otolaryngology**. Diagnosis and treatment of diseases of the ear, nose, and throat.

11. **Pathology**. Study and interpretation of changes in organs, tissues, and cells as well as alterations in body chemistry produced by disease.

12. **Pediatrics**. Prevention, diagnosis, and treatment of diseases in children.

13. **Physical medicine and rehabilitation**. Diagnosis of disease or injury in the various systems and areas of the body, treatment by means of physical procedures, and restoration of the convalescent and physically handicapped patient.

14. **Plastic surgery**. Corrective surgery to restore deformed or injured parts of the body, chiefly by transfer of tissues.

15. **Preventive medicine**. Prevention of disease and promotion of health through epidemiological studies and public health measures.

16. **Psychiatry and Neurology**. Diagnosis and treatment of mental disorders, emotional disturbances, and organic diseases affecting the nervous system.

17. **Radiology**. Diagnosis and treatment of disease through the use of radiant energy, including X-ray, radium, and cobalt treatments.

18. **Surgery**. Diagnosis and treatment of disease, injury, or deformity by manual or operative procedures.

19. **Thoracic surgery**. Diagnosis and operative treatment of diseases of the chest.

20. **Urology**. Diagnosis and treatment of diseases and disorders of the kidney, bladder, ureters, and urethra.

G. Future employment

Opportunities are virtually unlimited in every area of medicine. Employment is available in:

1. Private practice
2. Teaching
3. Administration
4. Schools
5. Public health
6. Research
7. Foreign service
8. Military forces
9. Industry

H. Earnings

Current starting yearly earnings range from $34,000.
Specialists usually earn considerably more than general practitioners.

I. Hours

Work week 50–70 hours likely in own practice.
Evening, night, and weekend work.
More limited and more regular hours likely when employed by institution.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Seek summer employment in a hospital.
3. Interview a physician about a career in medicine.
4. Discuss qualifications of a physician.
5. Discuss educational background of a physician.
6. Discuss what is meant by a medical specialty.
7. Discuss employment opportunities for physician.
8. Discuss advantages and disadvantages in this health field of medicine.
9. Observe a physician at work.

K. Visual Aids

*Portrait of an Internist.* 29 min., color, 16 mm (1967), Sterling Movies. This film follows an internist through several typical days to portray the varied functions of the specialist. The story concerns the diagnostic challenge a patient suddenly presents to Dr. Richard Barnett, and how the internist follows it through final diagnosis and recommended surgical treatment.

*I Am a Doctor* (794). 29 min., B/W, 16 mm, Sterling Movies. This film is a "Careers" film prepared by the American Medical Association. It dramatizes the services rendered to humanity by the medical profession. (For high school level.)

*A Wider World.* 28 min., B/W, 16 mm, Merck, Sharp & Dohme Film Library. This film is the third in the series entitled "The Making of a Doctor." It shows three of the many facets of medicine – private practice, public health, and medical research.

*Within These Walls.* 28 min., B/W, 16 mm, Merck, Sharp & Dohme Film Library. This film is the second in the series entitled "The Making of a Doctor." It continues to follow the education of the physician in his internship and residency.

*First a Physician.* 27 min., color, 16 mm, E. I. duPont Co., Inc. This film presents the facets of diagnostic and therapeutic radiology in the finding and treatment of various human ailments and diseases.

*Someone You Can Trust – Someone You Can Be.* 29 min., color, 16 mm, American Academy of General Practice. This film encourages the students to consider careers as physicians. Shows an average teenager who begins to see what being a doctor means – the rewards and challenges, the difficulties, and the satisfactions.

*Training the Medical Student.* 29 min., B/W, 16 mm, Ciba Pharmaceuticals. The life of a student at the University of Pennsylvania School of Medicine in a brief and dramatic sequence.

Additional information may be obtained from:

American Medical Women's Association
1740 Broadway
New York, New York 10019

American Academy of General Practice
Volker Boulevard at Brookside
Kansas City, Missouri 64112

American Medical Association
535 North Dearborn Street
Chicago, Illinois 60610

Association of American Medical Colleges
1346 Connecticut Avenue, N.W.
Washington, D.C. 20036

M. Bibliography

Gross, Martin L., *The Doctors.* New York: Random House (1966)

Chandler, Caroline A., M.D., *Famous Modern Men of Medicine.* New York: Dodd, Mead and Company (1965)

"Doctor X", *Intern.* New York: Harper and Row Publishers, Inc. (1965)

Woody, Regina, *The Young Medics.* New York: Julian Messner (1968)

Lopate, Carol; *Women in Medicine.* Baltimore, Maryland: John Hopkins Press (1968)

Kalb, S. William, *Your Future as a Physician.* New York: Richards Rosen Press, Inc. (revised 1970)

N. References and texts

Marti-Ibanez, *To Be a Doctor.* New York: M.D. Publications, Inc. (1968)

Garrison, *An Introduction to History of Medicine.* 4th Ed. Philadelphia, Pa.: W.B. Saunders Co.

O. Pamphlets and magazines

*Journal of Medical Education.* Association of American Medical Colleges, Baltimore, Maryland: Waverly Press, Inc.

*Horizons Unlimited.* Describes rewarding career opportunities in medicine and allied fields. Chicago, Illinois: American Medical Association

*The American Academy of General Practice, Its History and Objectives.* Kansas City, Missouri: American Academy of General Practice.

*Medicine as a Career for Women.* New York: American Medical Women's Association

*The Family Doctor.* Kansas City, Missouri: American Academy of General Practice

*Opportunities and Rewards of Medicine Can Be Yours.* Chicago, Illinois: American Medical Association

*Your Future in Medicine, Questions and Answers.* Kansas City, Missouri: American Academy of General Practice

*The Medical Staff of Your Hospital.* Chicago, Illinois: American Hospital Association

## Podiatrist

Podiatry goes back into ancient times. Several centuries before Christ, the Greeks recorded specific descriptions of foot care, especially of such ailments as calluses and corns. Especially in ancient times, the care of feet was very necessary, since generally the most common means of travel was on foot.

In the 18th century, anyone could practice this profession; no licensing standards for this medically related profession were required. Thus, the proper treatment of the feet left much to be desired.

It was only at the beginning of the 20th century that recognition of the profession began. New York passed a law requiring the licensing of chiropodists (the term formerly used for this profession), and other states began to follow suit. In 1912 the National Association of Chiropodists was formed, and in 1917 the term "podiatry" was introduced. It is now the preferred term.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Bibliography
Suggested activities
Pamphlets

A. Description of work

The Podiatrist is the specialist responsible for the care of the feet. He is concerned with the diagnosis, prevention, and treatment of foot disorders by medical and surgical means.

Personal qualifications

1. Good physical and mental health
2. Patience
3. Manual dexterity
4. Ability to get along with people
5. Courtesy
6. Neatness
7. Intelligence
8. Alertness
9. Dependability.

C. Duties

1. Diagnoses and treat diseases and deformities of the feet.
2. Performs foot surgery.
3. Uses drugs and physical therapy.
4. Prescribes proper shoes.
5. Fits corrective devices.
6. Takes X-rays of feet to help in diagnosis.

7. Treats conditions such as:

corns
calluses
bunions
ingrown toenails
skin and nail diseases
deformed toes
arch disabilities

D. Education

High school graduate with completed courses in English, Biology, Chemistry, Mathematics, and Physics.

E. Training

1. Accredited 4 year Podiatry course in a College of Podiatry. The degree of Doctor of Podiatric Medicine (D.P.M.) is awarded on the successful completion of the 4-year course of study.

2. State Board Examination for licensure to practice podiatry.

3. One-year internship in a hospital or college clinic after graduating from a College of Podiatry.

F. Advancement.

1. The podiatrist's practice ranges from office treatment and surgery to consultation with specialists in every area of health.

2. A podiatrist may also serve on the staff of hospitals and treatment centers, in government health programs, and in the armed forces. The demand for the podiatrist's service is expected to grow along with the demand for other health services.

G. Future employment. A podiatrist may be employed in:

a. Private practice
b. Hospitals
c. College of podiatry
d. Veterans Administration
e. Community health agencies
f. Armed forces

H. Earnings

Current starting salary range – $12,000 and up.
Experienced average about $21,500 or more.

I. Hours

1. Work week is usually 40 hours.
2. May set own hours to suit in private practice.
3. Work schedule may include evenings and Saturdays.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Make a field trip to local hospital.
3. Visit office of a podiatrist and observe.
4. Talk to a podiatrist about opportunities in a career in podiatry.
5. Volunteer services to local health agency.
6. Discuss plans about a career in podiatry with a practicing podiatrist.
7. Obtain information available from schools of Podiatry.
8. Discuss duties of a podiatrist.
9. Discuss salary and working conditions expected as a podiatrist.

K. Visual aids

*Podiatry as a Career.* 16 min., color, 16 mm, New Jersey State Museum. Describes the training requirements and occupational opportunities in the field of podiatry. Necessary student interests and activities are explored. Scenes of campus life and student activity are shown, as well as the work of the graduate podiatrist in private practice.

*Podiatry: Opportunity and Challenge.* 7½ min., color, 16 mm, (1967), Sterling Movies. This film tells of the great demand for podiatrists in this country. It includes a discussion of entrance requirements, subjects covered, clinical work, and internship. The rewards of a career in podiatry are noted, stressing the podiatrist's satisfaction of serving his fellow man as a member of the community health team.

*The Chiropody–Podiatry Clinic in Hospital Routine.* 20 min., color, 16 mm, 1958, ANA – NCN Film Library. Typical foot disorders of medical importance and methods of treatment. George M. Knowles, M.D., Director of Medicine at Hackensack Hospital, New Jersey, describes the role of the podiatrist–chiropodist in the hospital.

*The Winged Foot.* (1187). 13½ min., color, 16mm, Sterling Movies. This film was designed to tell the lay public what and who the Doctor of Podiatry is, and how he is the specialist who serves the nation's millions of sufferers from foot disorders.

L. Additional information may be obtained from:

American Podiatry Association
20 Chevy Chase Circle, N.W.
Washington, D.C. 20015

Committee on Scholarships and Fellowships
American Podiatry Association
3301 16th Street, N.W.
Washington, D.C. 20010

M. Bibliography

*If You're Planning a Professional Career – Doctor of Podiatry.* Washington, D.C.: American Podiatry Association, 3 pp., free

*Podiatrist*. Moravia, New York: Chronicle Guidance Publications, Inc. (1965), 4 pp. (35¢)

*Podiatry*. Washington, D.C.: U.S. Department of Health, Education and Welfare, 2 pp., free

*What's a Podiatrist?* Moravia, New York: Chronicle Guidance Publications, Inc., 1968, 4 pp. (35¢)

N. Pamphlets

*Doctor of Podiatric Medicine – Partner For Health*. The American Podiatry Association, 20 Chevy Chase Circle N.W., Washington, D.C. 20015

*Doctor of Podiatry – Family Foot Specialist*. American Podiatry Association, 3301 16th Street, N.W., Washington, D.C. 20010

*Students – Consider A Career in Podiatry*. The American Podiatry Association, 20 Chevy Chase Circle, N.W., Washington, D.C. 20015

*Scholarships and Fellowships*. American Podiatry Association, 3301 16th Street, N.W., Washington, D.C. 20010

*Podiatrist – Chiropodist*. Michigan Employment Security Commission, 7310 Woodward Avenue, Detroit, Michigan, 48202

## Sanitarian

Sanitary Engineering is a branch of engineering where the outlook is substantially different from other types of engineering. The focus is directly on people rather than on things. Its main function is the applying of scientific knowledge to natural materials and systems to promote and protect the health and welfare of mankind.

Sanitary engineering has roots dating back to antiquity. Among the impressive Roman engineering projects were their aqueducts, which brought water to a city several hundred miles away.

In this century, sanitary engineers have been responsible for the control of many deadly environmental diseases, such as cholera, typhoid fever, and the plague. During World War II the sanitary engineers enabled the Allied troops to control bases in the Pacific by their use of techniques and skills in eliminating or controlling disease-carrying mosquitoes.

Today, the profession's role and concern have expanded to include such environmental hazards as polluted air, occupational toxicity, and radioactivity. This profession has a more vital function to serve in society today than at any time in the past.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Bibliography
References and texts
Pamphlets
Suggested activities

A. Description of work

A Sanitarian is a qualified person engaged in the promotion and protection of public health. He applies technical knowledge to solve problems of a sanitary nature and develops methods and carries out procedures for the control of those factors of man's environment which affect his health, safety, and well-being.

B. Personal qualifications

1. Good physical and mental health
2. Cleanliness
3. Ability to deal with people
4. Integrity
5. Pleasing appearance
6. Initiative
7. Tact
8. Industrious work habits
9. Good judgment
10. Enthusiasm for the work

C. Duties

1. Enforces public health laws, ordinances, and regulations.
2. Inspects schools and institutions.
3. Advises on home safety and accident prevention.
4. Is concerned with sanitary conditions and insect and rodent control at:
   - bathing
   - trailer parks
   - motels and hotels
   - homes
5. Conducts surveys.
6. Makes epidemiological investigations
7. Organizes community groups interested in sanitation programs.
8. Promotes sanitary practices through various publicity media.

D. Education

High school graduate with courses in Biology, English, Foreign Language, Mathematics, Social Studies, Chemistry, Anatomy, and Physics.

E. Training

1. Two-year college program. This is an Associate Degree program, and graduates are known as Environmental Technicians.

2. Four-year college program awarding Bachelor degree in Environmental Health.

3. Graduates of 4-year colleges are eligible for the status of Registered Sanitarian after passing the appropriate examination.

4. Graduate degree required for advancement to supervisory and administrative positions.

F. Advancement

Promotions are based on technical qualifications, personal attributes, and demonstration of leadership qualities.

G. Future employment

1. State, county, and municipal health departments
2. Hospitals and institutions
3. Private industry
4. Colleges and universities
5. Research
6. U.S. Food and Drug Administration
7. Federal and state institutions
8. U.S. Public Health Service

H. Earnings

1. Current starting salary range $7,000 and up.
2. Experienced salary range $15,000 and up.

I. Hours

Work week is usually 40 hours.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Volunteer services to local health department.
3. Discuss responsibilities of a sanitarian.
4. Make field trips.
5. Seek summer employment to observe a sanitarian.
6. Discuss employment opportunities for sanitarian.
7. Talk to a sanitarian and discuss advantages and disadvantages of the profession.
8. Discuss duties of a sanitarian.
9. List personal qualifications of a sanitarian.
10. Obtain a list of accredited schools in this field.

K. Visual aids

*Engineering Your Health.* 13 min, 16 mm, P H S – Communicable Disease Center. This film describes the work of the sanitary engineer with emphasis on career motivation. Describes areas of air and water pollution and resources and radiological health hazards. Opportunities mentioned include research, industry, and government.

*The Answer Is Clear* (3085). 14 min., 16 mm, color, Modern Talking Picture Service. This film deals with air pollution. It discusses the aspects of air pollution and the progress made in reducing diesel exhaust smoke and odor.

*A Career in Bacteriology.* 20 min., 16 mm, color, Becton, Dickinson and Co. Emphasizes that young people with good high school and college background can find excellent opportunities in the field of bacteriology. It presents vocational opportunities in the various fields for those properly trained. It reviews the personal rewards and contributions that come to those working in this area.

*Community Health and You.* 10 min., 16 mm, N.J. State Museum Extension Service. The good health of a community is maintained by the local health department. The services and activities of the local health department are discussed on this film.

L. Additional information may be obtained from:

National Association of Sanitarians
1550 Lincoln Street
Denver, Colorado 80203

American Public Health Association
1790 Broadway
New York, N. Y. 10019

National Safety Council
425 No. Michigan Avenue
Chicago, Illinois 60611

M. Bibliography

*Sanitarian.* Moravia, New York: Chronicle Guidance Publications (1967), 4 pp.

*Future Needs for Sanitarians in Health Care Facilities,* John J. Walsh, Denver, Colorado: Journal of Environmental Health, Vol. 31, No. 1, July-August, 1966, 2 pp.

*Employment Outlook for Sanitarians.* Denver, Colorado: Journal of Environmental Health, Vol. 29 No. 1, July-August, 1966, 2 pp.

*The Professional Sanitarian.* Denver, Colorado: National Association of Sanitarians, 14 pp.

*Man — If You Want a Professional Career.* Berkeley, California: California State Department of Public Health, 1966, 4 pp.

*Career Opportunities in a Public Health Sanitarian.* Atlanta, Georgia: Georgia State Department of Public Health, 6 pp.

*The Sanitarian's Role Today in Changing Public Health.* Denver, Colorado: Journal of Environment Health, Vol. 30, No. 2, September-October, 1967, 2 pp.

N. References and texts

Stern, *Air Pollution,* 2nd Ed., Vol. I, Vol. II, Vol, III. New York, N.Y.: Academic Press (1968)

O. Pamphlets

*The Professional Sanitarian.* National Association of Sanitarians, 1550 Lincoln Street, Denver, Colorado 80203

*A Campus Is a Community.* National Association of Sanitarians, 1550 Lincoln Street, Denver, Colorado, 80203

*Qualifications of the Professional Sanitarian.* National Association of Sanitarians, 1550 Lincoln Street, Denver, Colorado 80203

*Radiological Health, an Integral Part of Environmental Health.* National Association of Sanitarians, 1550 Lincoln Street, Denver, Colorado, 80203

*Housing, Healthy or Hazardous.* National Association of Sanitarians, 1550 Lincoln Street, Denver, Colorado 80203

*Toward a Healthier World; Your Career in Sanitary Engineering.* U.S. Department of Health, Education and Welfare, Public Health Service, Washington, D.C., 20201

*Engineers in the U. S. Public Health Service.* P H S Publication No. 455, U. S. Public Health Service, Washington, D.C., 20201

*Financial Aid for Students of Sanitary Engineering and Related Fields.* U.S. Public Health Service, Washington, D.C. 20201

## Speech Pathologist and Audiologist

The profession of Speech Pathology and Audiology is relatively new. Its identity and importance as a separate profession has been recognized only recently. Heretofore, the function of this important profession was part of other medical professions. Today, as a career the profession is rich in opportunity. It is concerned with helping those who have speech, language, and hearing problems and with furthering our knowledge of the communication processes. The need for the function of this profession is so vital that an ever-increasing number of college and university programs are being established to provide the specialized preparation required to work in this profession.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Suggested activities
References and texts
Pamphlets

A. Description of work

The Speech Pathologist and Audiologist evaluates and diagnoses hearing and speech disorders, directs corrective therapy, and conducts conferences with patients and parents.

He provides services for the needs of handicapped children and adults.

He consults and works with the physician, social worker, teacher, psychologist, and rehabilitation counselor.

B. Personal qualifications

1. Good physical and mental health
2. Patience
3. Genuine desire to help people
4. Courtesy
5. Ability to communicate with and inspire confidence in patients
6. Tact
7. Good personal appearance
8. Ability to get along with people
9. Intelligence
10. Pleasing personality

C. Duties

1. Works with people who have:
   a. Speech defects
   b. Impaired hearing

2. Evaluates and diagnoses these disorders and directs corrective therapy.

3. Helps patients with strokes, cerebral palsy, and neurological disabilities.

D. Education

High school graduate with courses in English, Social Studies, Mathematics, Language, Biology, Chemistry, Anatomy, Physics.

E. Training

1. College program – 4-year teacher-preparation program at the Bachelor's or Master's Degree level

2. Most undergraduate programs consist of 2 years of college work in liberal arts and sciences, followed by specialization during the junior and senior years.

3. A.S.H.A. offers a Certificate of Clinical Competence to qualified individuals.

F. Advancement

Advancement opportunities are almost unlimited. Positions as clinicians, university teachers, researchers, and administrators are open in every city and state.

G. Future employment

Speech pathologists and audiologists may work in a variety of settings:

a. Hospitals
b. Community hearing and speech agencies
c. Public school systems
d. Colleges and universities
e. Health departments
f. Private practice
g. Rehabilitation centers
h. Research centers
i. Industry

H. Earnings

Current yearly starting salary range: $9,200–$17,200.

I. Hours

Work week is usually 40 hours.

J. Suggested activities for high school students

1. Join a Health Careers club.
2. Observe a speech pathologist and audiologist at work in hospital or rehabilitation center in your community.
3. Make a field trip to a local college that offers a speech and hearing careers program.
4. Discuss opportunities in the field of Speech Pathology and Audiology.

5. Volunteer services to a local hospital's speech and hearing clinic.
6. Talk to a speech pathologist about advantages of this health career.
7. Discuss how the speech and hearing therapist uses various techniques to help children and adults overcome defects or disabilities.

K. Visual aids

*Reach Into Silence.* 13½ min., color, 16 mm (1957), Beltone Institute for Hearing Research. This film is a presentation of the work being done at the John Tracy Clinic in teaching deaf children to speak and in rehabilitating children with hearing handicaps. This film is directed toward recruiting young people to pursue audiology and speech therapy professions.

*Lifeline to the World of Sound* (2639). 13½ min., color, 16 mm, Modern Talking Picture Service. Describes the handicap suffered by the one out of every ten Americans with a hearing loss. It shows how a tiny electronic hearing aid opens the door to a new world.

Filmstrip

*Health Careers – 4.* 51 pictures, 16 minutes of narration by several therapists. Lawren Production, Inc. Discusses professions in rehabilitation work requiring college or advanced degrees.

L. Additional information may be obtained from:

National Association of Hearing and Speech Agencies
919 – 18th Street, N.W.
Washington, D.C. 20006

National Easter Seal Society For Crippled Children and Adults
2023 West Ogden Avenue
Chicago, Illinois 60012

American Speech and Hearing Association
9030 Old Georgetown Road
Washington, D.C. 20014

American Cleft Palate Association
106 Parker Hall, University of Missouri
Columbia, Missouri 65202

United Cerebral Palsy Research Educational Foundation, Inc.
321 West 44th Street
New York, New York 10036

Professional Rehabilitation Workers With the Adult Deaf
P.O. Box 135
Knoxville, Tennessee 37901

M. Bibliography

*Speech Pathologist.* Moravia, New York: Chronicle Guidance Publications, inc., 1968, 4 pp., 35¢

*A Career in Speech Pathology and Audiology.* Washington, D.C.: American Speech and Hearing Association, 4 pp., free

*Speech Pathologists and Audiologists.* Columbus, Ohio: Ohio State Employment Service, May 1968, 3 pp., free

*Speech Therapy.* Chicago, Illinois: National Easter Seal Society for Crippled Children and Adults, Inc., 2 pp., free

*Traineeship for Graduate Study in Speech Pathology and Audiology.* Washington, D.C.: U.S. Dept. of Health, Education and Welfare, Vocational Rehabilitation Administration, Sept. 1968, 9 pp., free

N. References and texts

Glorig, A., *Audiometry.* Baltimore, Md.: Williams & Wilkins Co.

Oyer, H.J., *Auditory Communication for the Hard of Hearing.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc.

Fletcher, Harvey, *Speech and Hearing in Communication,* 2nd Ed. Cincinnati, Ohio: American Book Co.

Irwin, R.B., *A Speech Pathologist Talks to Parents and Teachers.* Pittsburgh, Pa.: Stanwix House, Inc.

O. Pamphlets

*Teaching Deaf Children.* National Association of Hearing and Speech Agencies, 919 – 18th Street, N.W., Washington, D.C. 20006

*Hearing and Speech Careers.* National Association of Hearing and Speech Agencies, 919 – 18th Street, N.W., Washington, D.C. 20006

*College and University Programs in Speech Pathology and Audiology.* American Speech and Hearing Association, 9030 Old Georgetown Road, Washington, D.C. 20014

## Veterinarian

Along with the development of scientific medicine for man, scientific care of animals was beginning. In the year 1762, the first school of Veterinary Medicine was established at Lyons, France. It wasn't until 100 years later that veterinary medicine took hold in America. Through efforts of Alexandre Liautard, an organization was started in 1863 which later was to be known as the American Veterinary Medical Association.

As a result of this organization, many small colleges of veterinary medicine began to spring up in this country. In 1879, Iowa State College established its School of Veterinary Medicine. This was the profession's first strong footing in the academic field. Today, at least 18 accredited schools of veterinary medicine exist in the United States. Most of these schools are part of the program of state-supported universities. One dramatic effect of the progress made in this field has been the reduction of the incidence of human diseases contracted from animals.

Suggested instructional procedures

Lecture
Discussion
Chalkboard
Visual aids
Suggested activities
References and texts
Pamphlets

A. Description of work

The Veterinarian studies and treats diseased and injured animals. He is also a key figure in disease prevention among human beings. The majority of veterinarians are general practitioners. Some specialize in treatment of small animals and pets, while others specialize in the health care of cattle, poultry, or horses.

Many veterinarians inspect meat, poultry, and other foods as part of the Federal and state public health programs.

Some veterinarians teach or do research related to animal diseases, foods, and drugs.

B. Personal qualifications

1. Good mental and physical health
2. Patience
3. Courtesy
4. Neatness
5. Accuracy
6. Pleasing personality
7. Intelligence
8. Interest in the care and welfare of animals
9. Physical strength

C. Duties

1. Gives medical or surgical care to sick or injured animals.

2. Keeps animals free from disease by vaccinating them and teaching their owners how to care for them properly.

3. Works to protect and promote human health.

D. Education

High school graduate with course emphasis on Science, Chemistry, English, Anatomy, Social Studies, Mathematics, Biology.

Two years of pre-veterinary college study.

E. Training

1. Four years of professional study for the Doctor of Veterinary Medicine degree

2. State Board Examination for license to practice

F. Advancement

Demands for veterinary services continues to rise. There are almost limitless opportunities open to the qualified veterinarian in the challenging tasks of safeguarding public health, building up the livestock industry, and conducting research. This last extends into the nuclear and space sciences.

G. Future employment

Employment opportunities are in:

a. Private practice
b. Research
c. Military service
d. Education
e. Commercial enterprise
f. Government service
g. Zoos
h. Animal hospitals

H. Earnings

Current starting yearly salary range $12,000–$15,000 and up.

I. Hours

1. Work week is usually 40 hours
2. May set own hours if in private practice

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Seek summer employment in animal hospital
3. Make a field trip to a zoo. Visit the infirmary.
4. Go to a local veterinarian to observe the care of animals.
5. Discuss responsibilities of a veterinarian.
6. Discuss employment opportunities for veterinarians.

K. Visual aids

*The Gentle Doctor.* 21 min., B/W or color, 16 mm (1964), Association Films, Inc. This film presents the story and the daily activity of the veterinarian – his importance to human health and animal health.

*The Veterinarian.* 26 min., color, 16 mm, Texaco Inc. This film shows that the veterinarian of today is a thoroughly professional man, and that his degree in Veterinary Medicine is the result of a long, hard medical schooling.

L. Additional information may be obtained from:

American Veterinary Medical Association
600 So. Michigan Avenue
Chicago, Illinois 60605

College of Agriculture and Environmental Science
Rutgers – The State University
New Brunswick, New Jersey 08903

Agricultural Research Service
U. S. Department of Agriculture
Washington, D.C. 20250

M. Bibliography

*American College of Laboratory-Animal Medicine.* Washington, D.C.: American College of Laboratory-Animal Medicine, August 1968, 5 pp., free

*Career Facts About Veterinary Medicine.* Chicago, Illinois: American Veterinarian Medicine Association, 5 pp., free

*Your Public Health Veterinarian.* Columbus, Ohio: Ohio State Department of Health, 4 pp., free

*Veterinarian.* Moravia, New York: Chronicle Guidance Publications, Inc. (1967), 4 pp. (35¢)

*Veterinary Medicine.* Chicago, Illinois: Health Careers Council of Illinois, 4 pp., free

N. References and texts

Merillat, Louis A. and Delvin M. Campbell, *Veterinary Medical History of the U.S.*. A brief record of the development of veterinary education practice and organization. American Veterinary Medical Association, Chicago, Illinois.

*Directory*. Chicago, Illinois: American Veterinary Medical Association

O. Pamphlets

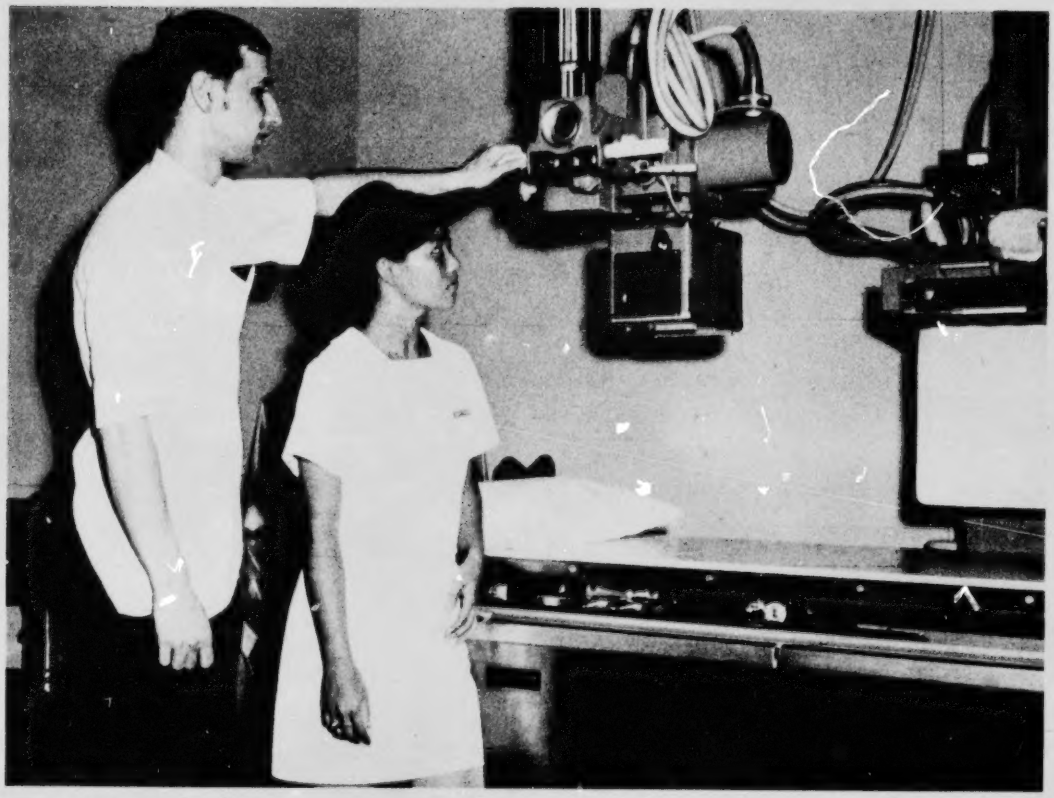
*Veterinarian. #B-29R Careers, Box 135, Largo, Florida 33541*

*Veterinarian*. Michigan Employment Security Commission, 7310 Woodward Avenue, Detroit, Michigan 48202

*Animal Science*. A program of the College of Agriculture and Environmental Science, Rutgers – The State University, New Brunswick, New Jersey 08903

*Today's Veterinarian*. American Veterinary Medical Association, 600 So. Michigan Avenue, Chicago, Illinois 60605

*Should You Be a Veterinarian?* New York Life Insurance Company, Box 51 Madison Square Station, New York, New York 10010



**X-Ray Technologist**

*X-ray Technologist instructs Health Career student in proper use of modern radiology equipment.*

## X-Ray Technologist

X-Ray Technology is a relatively young profession. The discovery of the X-ray by Wilhelm Konrad Roentgen took place in 1895. This great discovery opened new fields of research in the medical, dental, biological, chemical, and industrial fields. In the early days of radiology, the physician worked with no assistance, doing all his own radiology. But advances in the use of the X-ray eventually demanded more time and attention than the physician could normally give. Radiologists (the doctors who specialize in the field) anticipated the important place that the X-ray technologist would occupy in the field of medicine.

Through the efforts of the American College of Radiology and the Council on Medical Education and Hospitals of the American Medical Association, the schools of X-Ray Technology were organized. By 1964 there were over 700 schools approved by the American Medical Association. Today, there are over 100,000 trained X-ray technologists, over half of whom are registered with the American Registry of Radiologic Technologists.

Suggested instructional procedures

Lecture
Discussion
Visual aids
Bibliography
References and texts
Pamphlets
Suggested activities

A. Description of work

The X-ray Technologist works under the direction of a radiologist (physician). The radiologist is a medical doctor, trained and qualified to interpret radiographs and to administer radiation for diagnosis and treatment of disease.

The X-ray technologist is an important part of the health team dedicated to the diagnosis and treatment of diseases and injuries. The field is divided into three main branches:

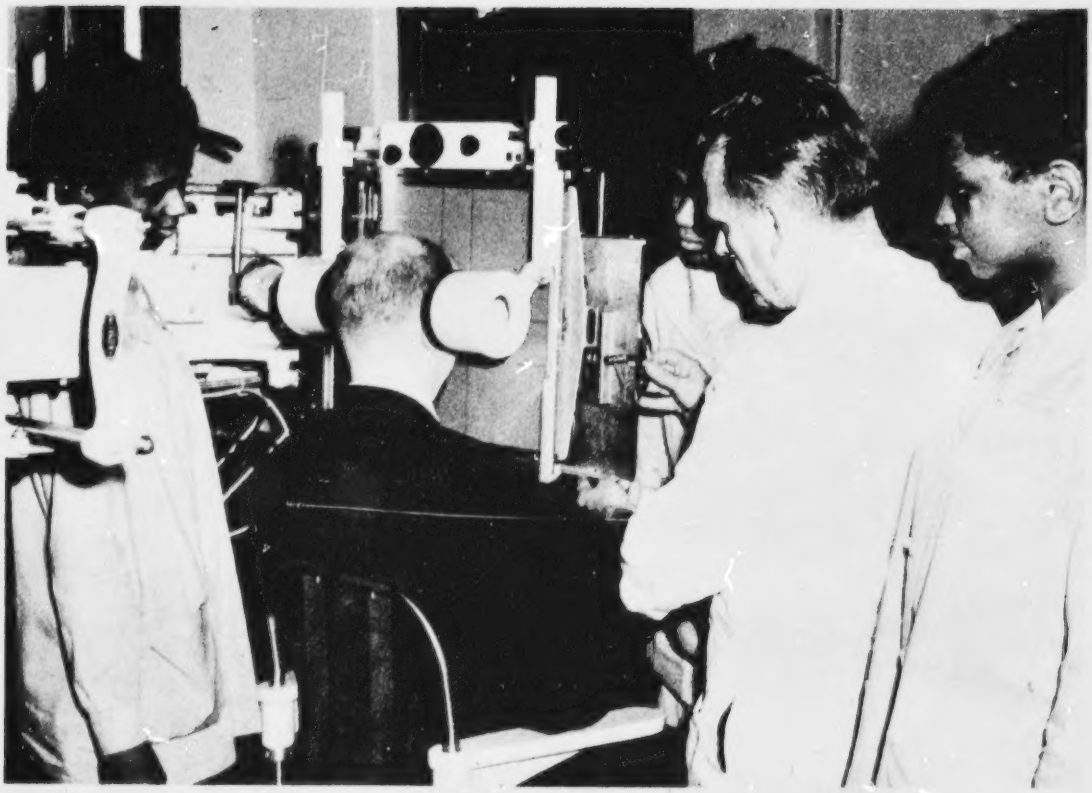
a. **Diagnostic radiography.** – The technologist takes X-ray films of the sick or injured.

b. **Therapeutic radiography.** – Involves treatment of diseased areas, using prescribed doses of X-rays.

c. **Nuclear medicine.** – Uses radioactive substances (radioisotopes) to treat disease.

B. Personal qualifications

1. Good physical and mental health
2. Accuracy
3. Dedication
4. Ambition
5. Versatility
6. Courtesy



*Chief Radiologic Technician preparing X-ray plate as Health Career students observe.*

*Radiologist offers instruction to Health Career students in a training session.*

7. Understanding
8. Ability to get along with people
9. Willingness to work with sick and disabled persons
10. Manual dexterity

C. Duties

1. Makes X-ray exposures.
2. Aids the radiologist in fluoroscopy.
3. Processes the films.
4. Adjusts controls on machines.
5. Positions patients for therapy treatments.
6. Keeps records and films of the patients.
7. Keeps equipment clean and in order.

D. Education

High school graduate with courses in English, Biology, Mathematics, Chemistry, Anatomy and Physiology, Physics, Social Science, and Typing.

E. Training

There are three types of training:

1. Training in a hospital-based school. Diploma awarded after 24 months.

2. Training at a 2- to 4-year college. Degree awarded. Practical experience is gained in a hospital's department of radiology.

3. A graduate of an approved school of X-Ray Technology may apply for examination to obtain a license to practice.

F. Advancement

There is a demand for qualified X-ray technologists due to the expanding of hospitals and health services. Those X-ray technologists who are skilled and capable should never lack opportunities for employment.

With additional training and experience, he may assume supervisory responsibilities, or become an instructor at a college or hospital school.

Preventive medicine has increased the number of job opportunities in government employment. More X-ray technicians will be needed to help administer radiotherapy.

G. Future employment

X-ray technologists are in great demand. It is presently anticipated that approximately 15,000 additional X-ray technologists will be needed in the next 5 years. Employment may be in:

1. Hospitals
2. Health agencies
3. Government agencies

4. Military service
5. Teaching
6. Industry – as a sales or service representative for X-ray equipment manufacturing companies
7. Doctors' offices
8. Companies with medical facilities for their employees

H. Earnings

1. Current starting yearly salary range $6,000–$9,880.
2. Administrative position starting salary range $10,000–$15,000.

I. Hours

1. Work week is usually 40 hours.
2. May be required to work evenings, nights, or weekends.

J. Suggested activities for high school student

1. Join a Health Careers club.
2. Make a field trip to local hospital or health agency to become familiar with equipment in X-ray department.
3. Discuss duties of an X-ray technologist.
4. Discuss why it is necessary to have a record of all patients scheduled for tests or treatments in the radiology department.
5. Explain the system used by a local hospital pertaining to patient preparation orders.
6. Discuss the difference between diagnostic and therapeutic radiography.
7. Prepare a list of all tests, examinations, and treatments given by your local hospital radiology department.
8. Volunteer services to local hospital or health agency.
9. Visit office of a radiologist and observe X-ray technologist at work.
10. Discuss advantages and disadvantages of a career in X-ray technology.

K. Visual aids

*Light in Shadows: The Story of X-Ray*. 21 min., color, 16 mm (1968), E. I. duPont de Nemours and Company, Inc. This film tells who a radiologist is and what he does. It traces the history of X-rays and takes the viewer inside two major hospitals to visit a radiologist in private practice.

*More Than a Job*. 27 min., color, 16 mm, Ansco. This film describes the training and work of the radiologic technologist. It is of general interest and a good recruiting tool.

*Training in X-Ray Technology*. 13 min., B/W, 16 mm, Stanford University. To assist in the recruitment of students into the field of X-ray technology, this picture shows the arrival of a new student, his instruction in action, classroom and teaching activities, and his graduation.

*Diagnosis and Therapy With Radiation.* 32 min., 16 mm, color, National Audiovisual Center (GSA). This film describes current techniques of radiation therapy through doses of radioactive chemicals, implanting techniques, and the use of external beams.

*Cobalt–60 Reloading.* (1958) 8 min., color, 16 mm, National Audiovisual Center (GSA). Describes the unloading of a Co 60 capsule from the Materials Testing Reactor at the National Reactor Testing Station in Idaho, monitoring and packing for shipment, and subsequent loading of the same capsule as the radioactive source into a teletherapy machine at the Argonne Cancer Research Hospital, Chicago, Illinois.

*Medicine.* (1957) 20 min., color, 16 mm, National Audiovisual Center (GSA). Produced by the U.S. Information Agency. Gives four illustrations of the use of radioactive materials in diagnosis and therapy; also the study of blood diseases and hardening of the arteries.

L. Additional information may be obtained from:

American Medical Association
535 North Dearbon Street
Chicago, Illinois 60610

American Society of Radiologic Technologists
645 North Michigan Avenue
Chicago, Illinois 60611

Local hospitals in your area

M. Bibliography

*Careers in X-Ray Technology.* Chicago, Illinois: American Society of Radiologic Technologists (1968) 5 pp.

*Approved Schools of X-Ray Technology.* Chicago, Illinois: American Society of Radiologic Technologists (1968) 18 pp.

*Medical X-Ray Technician.* Columbus, Ohio: Ohio State Employment Service (1968) 3 pp.

N. References and texts

Clark, *Positioning in Radiography,.* 8th Ed. New York: Intercontinental Medical Book Corp. (1964)

Deland & Wagner, *Atlas of Nuclear Medicine.* Vol I: *Brain* (1969) Vol II: *Heart & Lungs* (1970). Philadelphia, Pa.: W.B. Saunders Co.

Fletcher, *Textbook of Radiotherapy.* Philadelphia, Pa.: Lea & Febiger (1966)

*Golden's Diagnostic Roentgenology.* Baltimore, Md.: William & Wilkins Co. (1967)

Holt, et al., *The Year Book of Radiology.* Chicago, Illinois: Yearbook Medical Publishers, Inc. (1970)

Jacobi, *Textbook of Anatomy and Physiology in Radiologic Technology*. St. Louis, Mo.: C.V. Mosby Co. (1968)

Jones, *Basic Diagnostic Radiology*. St. Louis, Mo.: C.B. Mosby Co. (1969)

Murphy, *Radiation Therapy*, 2nd Ed. Philadelphia, Pa.: W.B. Saunders Co. (1967)

Seeman, *Physical and Photographic Principles of Medical Radiography*. New York: J. Wiley & Sons, Inc. (1968)

Spiers, *Radioisotopes in the Human Body, Physical and Biological Aspects*. New York: Academic Press (1968)

Stanton, *Basic Medical Radiation Physics*. New York: Appleton-Century-Crofts (1969)

Sutton, *A Textbook of Radiology*. Baltimore, Md.: Williams & Wilkins Co. (1969)

Wagner, *Principles of Nuclear Medicine*. Philadelphia, Pa.: W.B. Saunders Co. (1968)

Watson, *Patient Care and Special Procedure in Radiologic Technology*, 3rd Ed. St. Louis, Mo.: C.B. Mosby Co. (1969)

O. Pamphlets

Helene Fuld Hospital School of X-Ray Technology, Trenton, New Jersey

Mercer Hospital School of X-Ray Technology, Trenton, New Jersey

St. Francis Hospital School of X-Ray Technology, Trenton, New Jersey

*Careers in X-Ray Technology*. Chicago, Illinois, American Society of Radiologic Technologists (Revised 1969)

Pamphlets published by local hospital X-Ray Technology training departments.

## Unit 4 – Field Trips

Objectives – The student will be able:

To list the various functions of the different areas to which field trips are made.

Field trip experiences are becoming a growing part of the modern school curriculum. Field trip experiences may come at the beginning of a project as a means of presenting an introduction or of arousing interest, during the development of a project to help visualize some point of study, or at the end for purposes of summary. The teacher and students should decide in each instance when a field experience would be most profitable.

Thorough planning is essential if the trip is to have educational value for the students. On the trip, discussion of what is going on or being seen should be directed to the purposes for which the trip is made. When the group has returned to the classroom, the trip should be summarized, the gains itemized, the lesson drawn so all will understand. All matters such as parental consent, time for the trip, rules for conduct, appropriate clothing, and cost should be agreed upon before undertaking the trip.

Suggested Areas:

A. Local General Hospital
    1. School of Nursing
    2. School of X-Ray Technology
    3. School of Laboratory Technology
    4. The various hospital departments
        a. Administration
        b. Business Office
        c. Admitting Office
        d. Emergency Room
        e. Nursing Service
        f. Surgery Department
        g. Medical Laboratory Department
        h. Radiology Department
        i. Pharmacy Department
        j. Medical Records Department
        k. Medical Library Department
        l. Social Service Department
        m. Occupational Therapy Department
        n. Recreation Therapy Department
        o. Central Supply Department
        p. Physical Therapy Department
        q. Dietary Department
        r. Dental Clinic
        s. Biometrics
            (1) EKG
            (2) EEG
            (3) Inhalation Therapy

B. Local Psychiatric Hospital
C. State and Local Health Departments
D. Rehabilitation Centers
E. Nursing Homes
F. Library
G. State School for the Deaf
H. Local Heart Association
I. Non-hospital facilities related to health and medical careers
J. Blood Bank (Local)
K. Water Purification Plant
L. Sewage Disposal Plant
M. Voluntary Health Agency
N. Bureau of Preventive Diseases
O. Pharmaceutical Firms
P. Health Insurance Companies (Blue Cross)
Q. Research Centers
R. Mental Retardation Day-Care Center

## Unit 5 – Guest Speakers

Objectives – The student will be able:

To achieve a better insight into the nature of the various health careers, as described by guest speakers.

To be informed of the latest trends and developments in the various health careers.

Every speaker should be fully prepared to talk to these particular students. After scheduling the date and time with the speaker, the teacher or coordinator should:

Request materials to orient the students about the occupation.

Provide the speaker with information about the students: grade levels, interests, goals (in general), and an average level of indicated ability.

Ask the speaker to urge the students to stay in school – to emphasize the importance of the high school diploma.

State the total class time available. Tell the speaker how long he may talk with the students. Request time for the students to ask questions.

Encourage the speaker to bring any large pictures or visual displays that may be suitable for display or illustrative purposes.

Help one of the students develop the background information about the speaker into a concise introduction.

Ask the speaker to cover:

Job opportunities in the field he represents

Types of occupations which may develop in this field

Requirements for this type of work

Hazards of this type of work, e.g., heat, cold, noise, odors

Salary range

Benefits

Educational opportunities

Attitudes that make desirable employees

Attitudes that cause employees to lose their jobs

Attendance

Training and education needed by an employee

Is it possible to obtain the needed training in high school?

Personality traits necessary for satisfactory and continued employment

What are the special satisfactions to be derived from this occupational area?

The school and class should observe certain courtesies due any speaker:

1. Notify the main office that the guest speaker will arrive. Give the office his name, date, and time of arrival.
2. Have one of the students greet the guest at the main office and escort him to the classroom.
3. Have one of the students prepared to introduce the speaker.
4. Have a student prepared to rise and thank the speaker at the end.
5. Have a student guide the guest speaker out of the building.

Speakers may be obtained from:

New Jersey Health Careers, Inc. *
375 West State Street
Trenton, N. J. 08618
Thomas F. Caldwell, Exec. Dir.

Various health-careers personnel

Local community

Local hospitals

Local health agencies

Rehabilitation centers

Local and state health departments

Schools of health-careers programs

* This organization maintains a current list of available speakers throughout the state who are qualified to discuss any particular health career covered in this book.

## Unit 6 -- School Interests and Some Related Health Careers

Objectives -- The student will be able:

To identify the applicability of certain school interests and some extracurricular activities to specific health careers.

The following table shows the applicability of school interests and of some extracurricular activities to specific health careers.

| | |
|---|---|
| 1. ART | Medical Artist<br>Illustration Poster and Display Artist<br>Occupational Therapist |
| 2. BUSINESS AND FINANCE | Administrator<br>Administrative Assistant<br>Controller<br>Accountant, etc. |
| 3. CLERICAL SKILLS | Business Office Worker<br>Medical Records Librarian<br>Medical Secretary<br>Ward Clerk |
| 4. ELECTRONICS | Computer Programer<br>Computer Operator<br>Electronics Technician<br>Medical Engineer |
| 5. ENGLISH AND JOURNALISM | Health Educator<br>Librarian (hospital and medical)<br>Public Information Specialist<br>Public Relations Officer<br>Science Writer<br>Technical Writer |
| 6. FOREIGN LANGUAGE | Medical Librarian<br>Translator (of medical and scientific publications) |
| 7. HOME ECONOMICS | Dietitian<br>Executive Housekeeper<br>Food Service Worker<br>Homemaking Rehabilitation Consultant<br>Nutritionist |
| 8. INDUSTRIAL ARTS<br>(Wood, metal, electronic, etc.) | Hospital Engineer<br>Instrument Maker<br>Maintenance Worker<br>Manual Arts Therapist<br>Medical Engineering Technician<br>Prosthetic Appliance Maker |

| | |
|---|---|
| 9. MATHEMATICS . . . . . | Biomedical Research Scientist<br>Computer Programer<br>Health Statistician<br>Statistical Clerk |
| 10. MODEL MAKING . . . . . | Exhibits Builder<br>Scientific Model Technician |
| 11. MUSIC . . . . . | Music Therapist |
| 12. PHOTOGRAPHY . . . . . | Photographer (research or public information) |
| 13. PHYSICAL EDUCATION . . . . . | Corrective Therapist<br>Physical Therapist<br>Recreation Therapist<br>School Health Educator |
| 14. SOCIAL STUDIES . . . . . | Health Economist<br>Health Sociologist<br>Psychologist<br>Public Health Educator<br>Public Health Program Assistant<br>Social Worker |
| 15. SCIENCE . . . . . | Biologist<br>Chemist<br>Physicist<br>Mathematician<br>Engineer in Basic Research<br>Environmental Health (including<br>Sanitary Engineer<br>Sanitarian<br>Industrial Hygienist<br>Radiological Health Specialist)<br>Food and Drug Protection<br>Medical Engineering |

(Courtesy of N.J. Health Careers Inc.)

## Unit 7 – Hospital Job Opportunities

Objectives – The student will be able:

To identify various job opportunities available in hospitals.

A. Administration .



Hospital Administrator
Administrative Assistant
Director of Medical Services
Director of Nursing Services
Hospital Pharmacist
Controller
Purchasing Director

B. Nursing

Nurse Anesthetist
Registered Nurse
Licensed Practical Nurse
Nursing Aid and Orderly
Psychiatric Aid
Medical Social Worker

C. Technicians

Operating Room Technician
Medical Laboratory Technician
Medical Laboratory Assistant
Cytotechnologist
Histologic Technician
Electrocardiogram Technician
Electroencephalographic Technician
Radiologic Technician
Nuclear Medical Technologist

D. Therapy

Inhalation Therapist
Inhalation Therapist Assistant
Occupational Therapist
Occupational Therapist Assistant
Recreation Therapist
Physical Therapist
Prosthetist and Orthotist
Speech and Hearing Therapist

E. Library

Medical Illustrator
Medical Librarian
Medical Records Librarian

F. Dietary

Dietitian
Dietary Aid
Food Service Worker

G. Dental

Dental Hygienist
Dental Assistant
Dental Laboratory Technician
Dental Secretary

H. Others

Ward Clerk
Receptionist
Medical Secretary
Medical Stenographer

## Directory of Film and Filmstrip Sources

American Academy of General Practice
Volker Blvd. and Brookside
Kansas City, Mo. 64112

American Association of Nurse Anesthetists
111 East Wacker Drive
Chicago, Ill. 60601

American Bakers Association
Suite 650
1700 Pennsylvania Avenue, N.W.,
Washington, D. C. 20006

American Cancer Society (Mercer County)
88 Lakedale Drive
Trenton, N. J. 08638

American Dental Association
Bureau of Audio-Visual Service
211 East Chicago Avenue
Chicago, Ill. 60611

American Gas Association
Film Service
603 Third Avenue
New York, N. Y. 10016

American Heart Association (Mercer Co.)
639 Pennington Avenue
Trenton, N. J. 08618

American Hospital Association
Film Library
840 North Lake Shore Drive
Chicago, Ill. 60611

American Occupational Therapy Assoc.
251 Park Avenue South
New York, N. Y. 10010

American Osteopathic Association
212 East Ohio Street
Chicago, Ill. 60611

American Petroleum Institute
Committee on Public Affairs
1271 Avenue of the Americans
New York, N. Y. 10020

American Pharmaceutical Association
2215 Constitution Avenue, N.W.
Washington, D. C. 20037

American Physical Therapy Association
2057 Bragg Street
Brooklyn, N. Y. 11229

American Red Cross (Trenton Area Chapter)
399 W. State Street
Trenton, N. J. 08618

ANA–NLN Film Library
267 West 25th Street
New York, N.Y. 10001

Ansco
4255 Touhy
Lincolnwood, Ill. 60628

Association Films Incorporated
600 Madison Avenue
New York, N. Y. 10022

Avon Products, Inc.
30 Rockefeller Plaza
New York, N. Y. 10020

Ayerst Laboratories
685 Third Avenue
New York, N. Y. 10017

Bausch & Lomb, Inc.
Film Distribution Service
635 St. Paul Street
Rochester, New York 14602

Becton, Dickinson and Co.
Rutherford, N. J. 07070

Beltone Institute for Hearing Research
4201 West Victoria Street
Chicago, Ill. 60646

Bray Studios, Inc.
630 9th Avenue
New York, N. Y. 10036

Cahill, Charles and Association, Inc.
P. O. Box 3220
Hollywood, California 90028

Cereal Institute, Inc.
135 South La Salle Street
Chicago, Ill. 60603

Ciba Pharmaceuticals
Lafayette Park
Summit, N. J. 07901

Corning Museum of Glass
Curator of Education
Corning Glass Center
Corning, New York 14830

Coronet Films
Coronet Bldg.
65 E. South Water Street
Chicago, Ill. 60601

Department of the Air Force
Film Library Center
8900 So. Broadway
St. Louis, Mo. 63125

Department of the Army
First U. S. Army
Audio-Visual Support Center
Fort George G. Meade, Md. 20755

E. I. du Pont Co., Inc.
Motion Picture Service
1007 Market Street
Wilmington, Del. 19898

Employers Insurance of Wausau
Wausau, Wisconsin 54401

Encyclopaedia Britannica Films
425 N. Michigan Avenue
Chicago, Ill. 60611

Ethicon, Incorporated
Route 22
Somerville, N. J. 08876

Film Associates
11559 Santa Monica Blvd.
Los Angeles, Cal. 90025

Florida Development Commission
Film Library
Tallahassee, Fla. 32304

Food and Agriculture Organization
of the United Nations
North America Regional Office
1325 C Street, N.W.
Washington, D. C. 20437

Ford Motor Company
Film Library
The American Road
Dearborn, Michigan 48121

Harris–Tuchman Productions, Inc.
751 North Highland Avenue
Hollywood, Cal. 90038

Henry Ford Community College
5101 Evergreen Road
Dearborn, Michigan 48128

Henry Strauss Distributing Corp.
31 West 53rd Street
New York, N. Y. 10019

Hoffmann-La Roche Incorporated
Nutley, N. J. 07110

Huntington Laboratories Incorporated
Huntington, Indiana 46750

Institute of Makers of Explosives
420 Lexington Avenue
New York, N. Y. 10017

International Film Bureau, Incorporated
332 So. Michigan Avenue
Chicago, Ill. 60604

J. B. Lippincott Company
East Washington Square
Philadelphia, Pa. 19105

Kaiser Foundation Rehabilitation Center
2600 Alameda
Vallejo, Cal. 94590

Lawren Production, Inc.
P.O. Box 1542
Burlingame, Cal. 94010

Lederle Laboratories
Film Library
Pearl River, N. Y. 10965

Eli Lilly and Company.
Audio-Visual Film Library
P.O. Box 618
Indianapolis, Indiana 46206

McGraw Hill Book Company, Inc.
Film Department
330 W. 42nd Street
New York, N. Y. 10036

Medi Visual, Inc.
Suite 1814, Dept S
342 Madison Avenue
New York, N. Y. 10017

Merck Sharp & Dohme Film Library
West Point, Pa. 19486

Metropolitan Life Insurance Co.
1 Madison Avenue
New York, N. Y. 10010

Modern Talking Picture Service
Classroom Service Department
1212 Avenue of the Americans
New York, N. Y. 10036

National Association for Mental Health
10 Columbus Circle
New York, N. Y 10019

National Foundation – The March of Dimes
800 Second Avenue
New York, N. Y. 10017

National Multiple Sclerosis Society
257 Park Avenue South
New York, N. Y. 10010

National Tuberculosis and Respiratory
Disease Association
1740 Broadway
New York, N. Y. 10019

Naval Medical School
Audio-Visual Division
Bldg. 141, Room 11-B
Bethesda, Md. 20014

New Jersey Bell Telephone (Local Office)
224 E. State Street
Trenton, N. J. 08611

N. J. State Museum Extension Service
P.O. Box 1868
Trenton, N. J. 08625

Pennsylvania State University
Audio-Visual Aids Library
University Park, Pa.

Pepsi-Cola Company
500 Park Avenue
New York, N. Y. 10022

Philip Roxane Laboratories, Inc.
330 Oak Street
Columbus, Ohio 43216

PHS – Communicable Disease Center
Audio-Visual Section
Atlanta, Ga. 30333

Prentice-Hall, Inc.
Englewood Cliffs, N. J. 07632

Radium Films
211 East 43rd Street
New York, N. Y. 10017

Robert J. Brady Company
130 Q Street, N.E.
Washington, D.C. 20002

Shell Oil Company
149-07 Northern Boulevard
Flushing, N. Y. 11354

Smith, Kline & French Laboratories
1500 Spring Garden Street
Philadelphia, Pa. 19101

Stanford University
Department of Radiology
Palo Alto, Cal. 94304

Sterling Movies
43 West 61st Street
New York, N. Y. 10023

Stuart Reynolds Productions
9465 Wilshire Boulevard
Beverly Hills, Cal. 90212

Swift and Company
1919 Swift Drive
Oak Brook, Illinois 60521

Texaco Incorporated
830 Boylston Street
Chicago, Ill. 60604

Trainex Corporation
A Medcom, Inc.
P.O. Box 116
Garden Grove, Cal. 92642

Union Pacific Railroad
Motion Picture Bureau
1416 Dodge Street
Omaha, Nebrasks 68601

University of Iowa College of Nursing
Westlawn
Iowa City, Iowa 52240

U.S. Department of the Navy
Director, Medical Film Library
U.S. Naval Medical School
National Naval Medical Center
Bethesda, Maryland 20014

U.S. National Audiovisual Center
National Archives and Record Service
Washington, D.C. 20409

U.S. Public Health Service
National Medical Audiovisual Center
Atlanta, Georgia 30333

Visual Products Division, 3M
Box 3344
St. Paul, Minn. 55101

Wayne State University Center
for Instructional Technology
5557 Cass Avenue
Detroit, Michigan 48202